

**CUTTING, HEATING  
and  
WELDING EQUIPMENT**

**SMITH WELDING EQUIPMENT Division of TESCO CORPORATION**  
27th AVENUE AND FOURTH STREET S.E. • MINNEAPOLIS, MINNESOTA 55414







This catalog is a reference guide to the cutting, heating, welding, and pressure regulation equipment manufactured by Smith's. Here's how to find items in it:

1. The catalog is divided into sections according to equipment function. There's a black tab on the outer edge of each page like this:

TORCH  
BODIES

It will show up in the same position on the page as the section heading listed at the right.

By fanning the edge of the catalog, you should be able to quickly find the section of the item you're looking for.

2. The equipment within a section is also categorized by its performance, durability and capacity in accepted use. Basically, "Tuf Tony" is Rugged Duty; "Silver Star" and "LC" are Heavy Duty; "Pipeliner" and "Pipewelder's Special" are Medium Duty; and "Air-line" is Light Duty.

In addition to the description of a product, you will be able to tell whether it's Rugged, Heavy, Medium, or Light Duty by glancing at the code line on the inside margin of each page:

**Rugged Duty**

**Heavy Duty**

**Medium Duty**

**Light Duty**

3. Equipment is cross-referenced so you can tell what other equipment fits with it. You would then turn to the other section for more information.
4. Most needed information about a product is contained within its own description. Additional performance data will be found in the Technical Section at the back of the catalog.
5. The design of this catalog allows changes to be made easily. Loose-leaf binders are available to anyone who is concerned with changes. Page or section changes will be provided as they occur. If you prefer a loose-leaf catalog to a bound one, contact your source of supply or the Advertising Department at Smith's.
6. And since we will be making changes regularly, we would be most appreciative of any suggestions you can offer to make this catalog easier for you to use. Only in this way can it be a more effective device for identifying Smith Equipment.

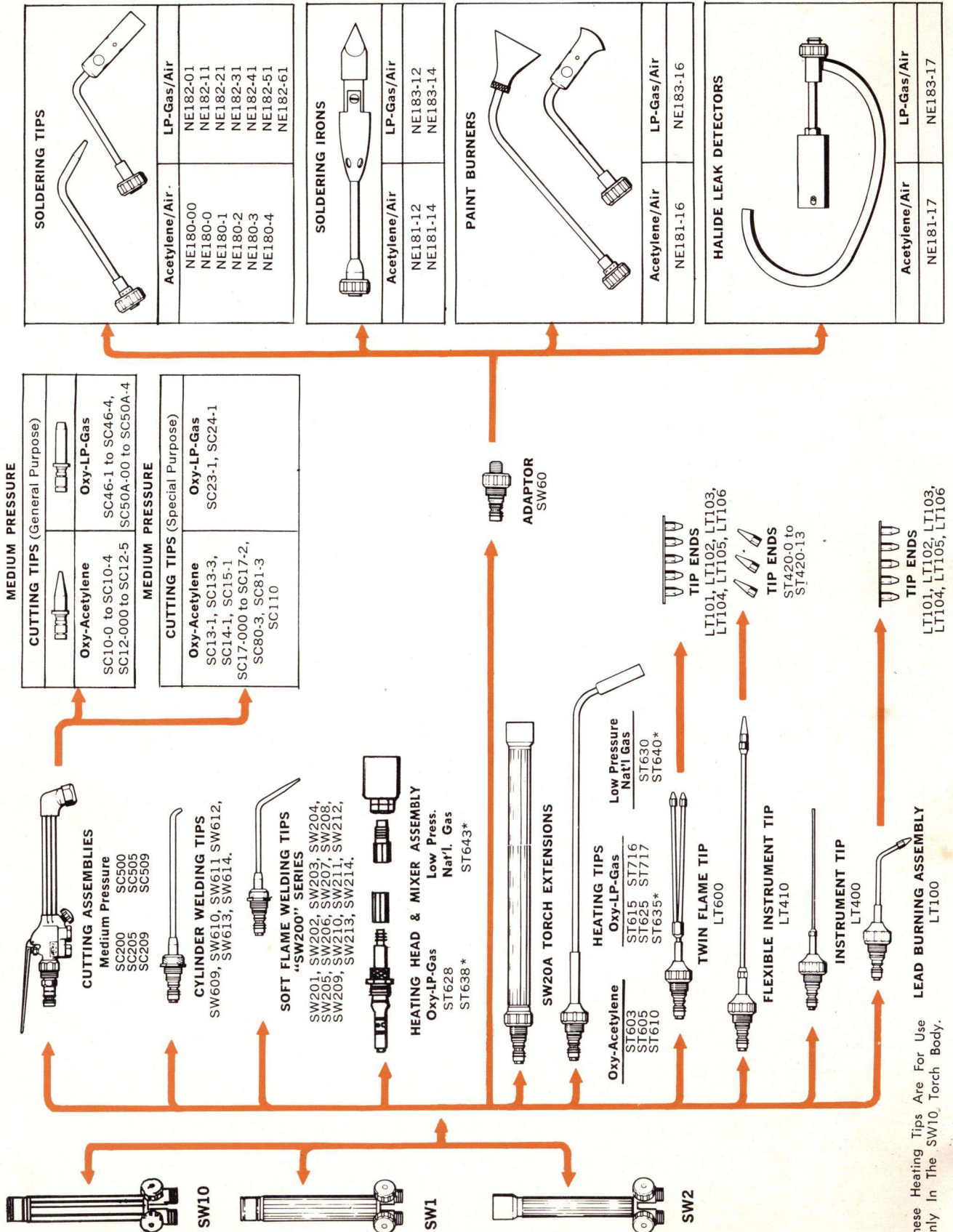


# SILVER STAR

Combination Welding & Cutting Equipment with Accessory Tips for special usage.

## SMITH'S TORCH UTILITY GUIDE CHART

Your "Road Map" to greater torch usefulness. See individual sections for detailed information.

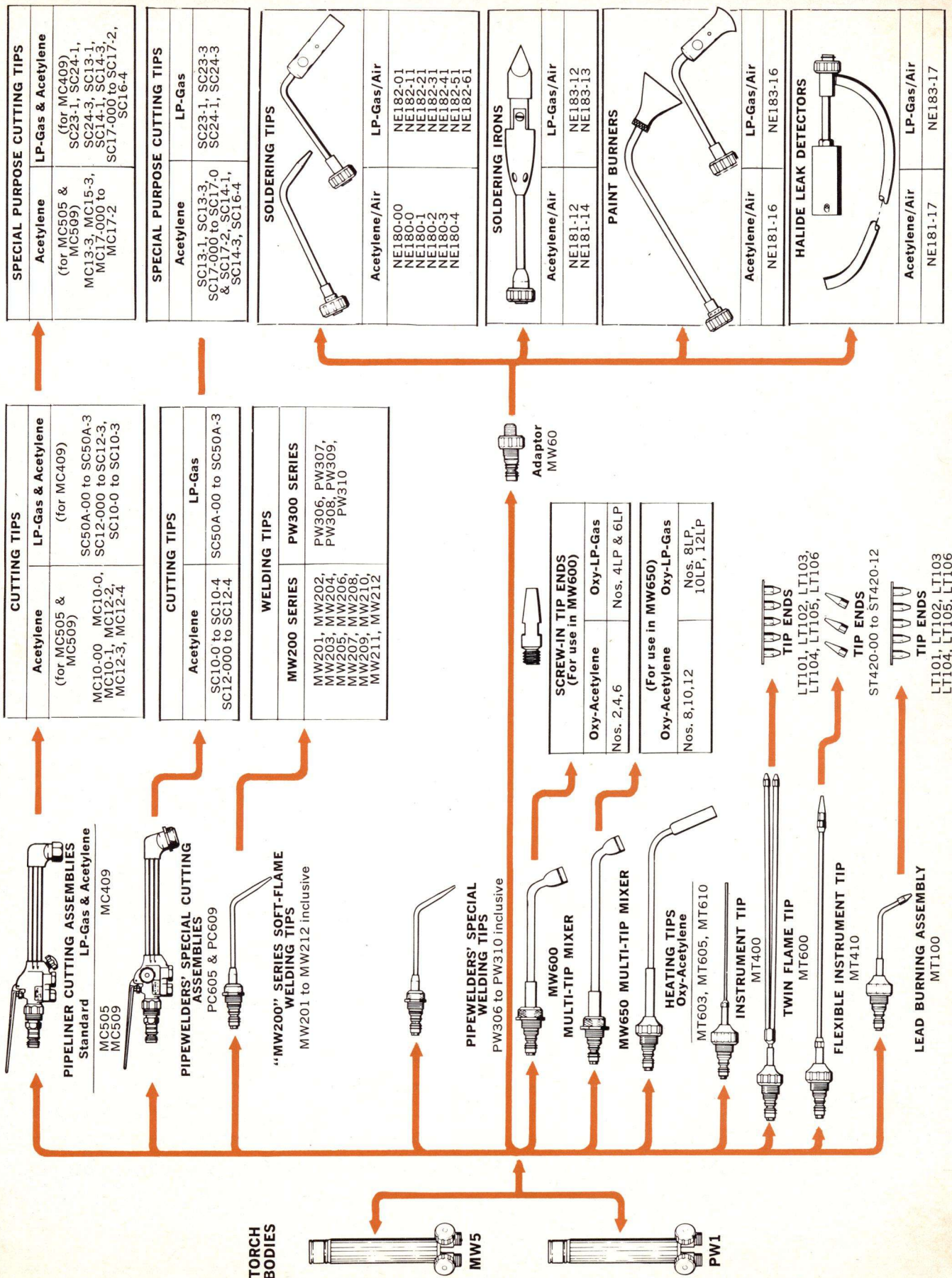


\*These Heating Tips Are For Use Only In The SW10, Torch Body.



# SMITH'S TORCH UTILITY GUIDE CHART

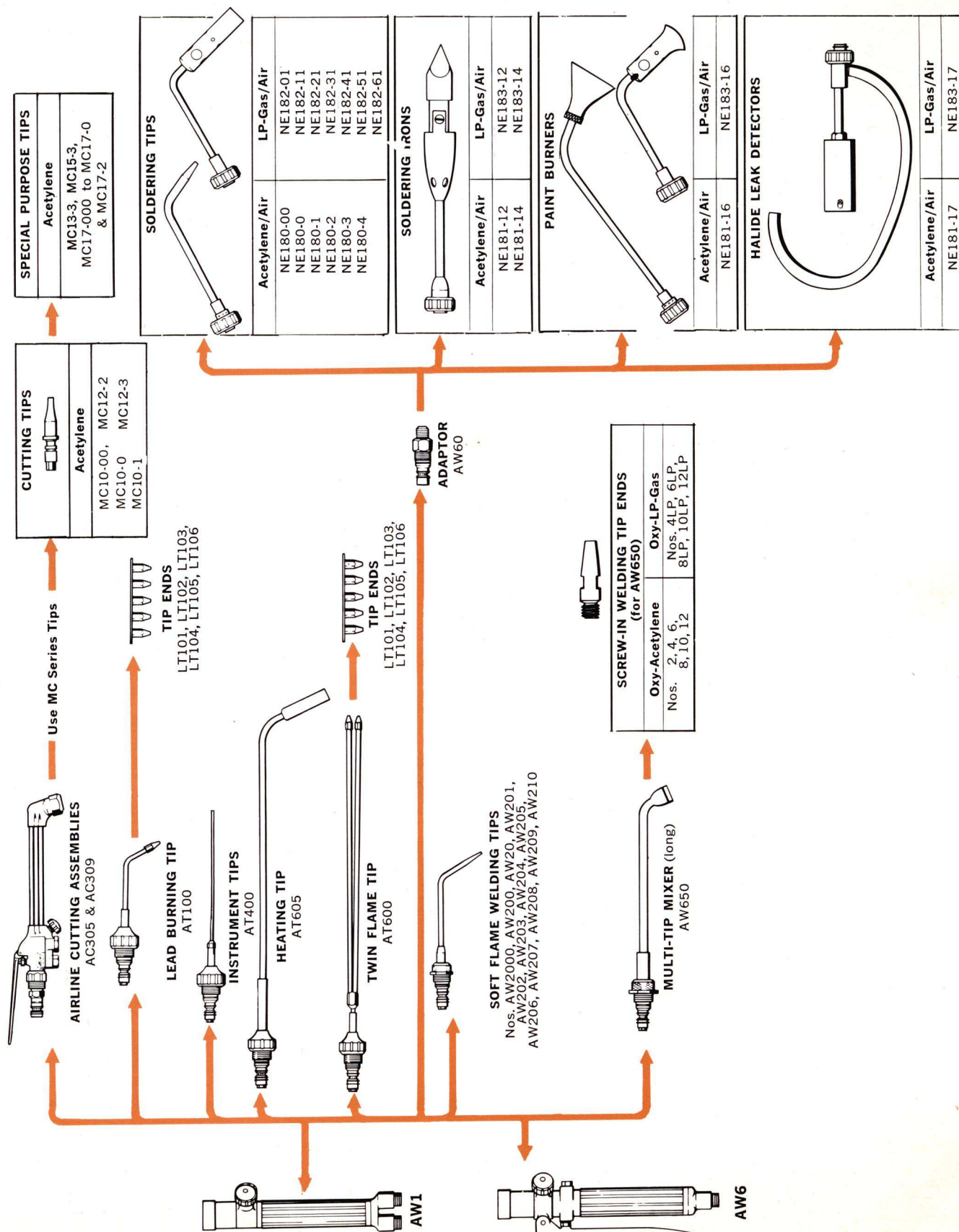
Many different tips and sizes—Dozens of uses.





# SMITH'S TORCH UTILITY GUIDE CHART

Your guide to the many uses of the World's most versatile Light Duty equipment.





# TORCH BODIES

For Welding, Cutting, Heating and Special Jobs



NWSA 220

TORCH  
BODIES

## SW1 SILVER-STAR BODY

Heavy duty torch body for general purpose welding, heating, brazing and cutting. Has precision machined solid brass head, pressure forged butt and fluted, "Easy-Grip" handle. Ball type needle valve stems with FLEX-SEAL packing assure leak proof gas flow control. Inlet connections fit "B" size hose nuts— $\frac{7}{16}$ "—18 right and left hand.

## SW2 SILVER-STAR BODY

A slimmer, longer torch body for those who prefer it. Has same features and uses as SW1.

**FITS:** Cutting Assemblies—SC200, SC205, SC209, SC500, SC505, SC509, SC805, SC809. Welding Tips—SW200 Series, SW600 Series. Heating Tips—ST603, ST605, ST610, ST615, ST625, ST628, ST716, ST717, ST630.

**Accessory Tips** —LT100, LT400, LT410, LT600. Adaptor No. SW60A.

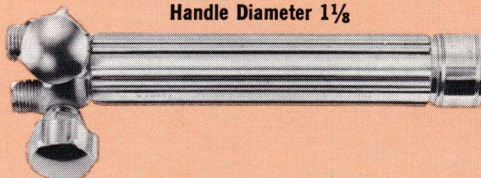
## SW10 HIGH VOLUME TORCH BODY

Delivers 50% higher flow than the SW1 yet weighs less than  $\frac{1}{2}$  ounce more. The versatile SW10 can handle any job, from light welding up to heavy heating. Smith's 5-layer teflon valve packing prevents flame instability due to valve end play. Use with  $\frac{3}{8}$ " I.D. hose for maximum performance. Has replaceable  $\frac{5}{16}$ "-18 inlet connections.

**FITS:** All equipment listed for SW1 & SW2 PLUS the high volume heating tips — ST635, ST638, ST640 & ST643.

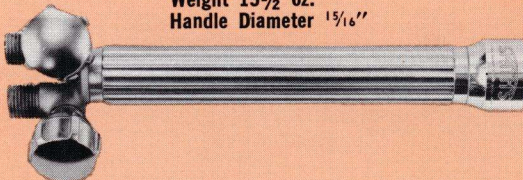
SW1

Length  $7\frac{5}{16}$ "  
Weight 17 oz.  
Handle Diameter  $1\frac{1}{8}$ "



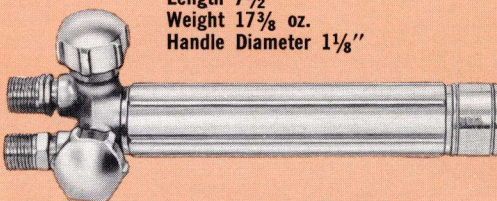
SW2

Length 8"  
Weight  $15\frac{1}{2}$  oz.  
Handle Diameter  $1\frac{5}{16}$ "



SW10

Length  $7\frac{1}{2}$ "  
Weight  $17\frac{3}{8}$  oz.  
Handle Diameter  $1\frac{1}{8}$ "



## SW20A TORCH EXTENSION

Used with SW1, SW10 and SW2 torch bodies to extend length by 12". Safer to use than tip extensions because gases are kept separate ahead of mixing point. Couple together for greater length.

**FITS:** SW1, SW10 and SW2 Torch Bodies. Used with all welding tips, heating tips and accessory items recommended for use in SW1, SW10 and SW2 bodies.

SW20A

Overall Length 14"  
Weight  $19\frac{3}{4}$  oz.  
Handle Diameter  $1\frac{5}{16}$ "



## MW5 PIPELINER TORCH BODY

The most popular medium size torch body in America. Will handle all but the heavy types of manual welding, cutting and heating jobs. Inlet connections fit "B" size hose nuts— $\frac{7}{16}$ "—18 right and left hand. Uses either  $\frac{1}{4}$ " or  $\frac{3}{16}$ " I.D. hose. Ball type needle valves. Forged brass butt and precision machined brass head with protected internal threads.

## PW1 PIPEWELDERS' SPECIAL BODY

Designed especially to the exacting requirements of Pipewelders. Light and easy to handle in awkward positions. Same features as MW5 but  $\frac{3}{4}$ " shorter. Adaptable to wide range of cutting assemblies, welding, heating and accessory tips.

**FITS:** Cutting Assemblies—MC505, MC509, MC409, MC600, MC605, MC609, PC605, PC609. Welding Tips — MW200 Series, PW300 Series. Multi-Tip Mixers (Gooseneck) MW600 and MW650. Use with Screw-in Welding Tip Ends 1-12 (Acet.) 4 LP-12LP (Propane). Heating Tips — MT603, MT605, MT610. Accessory Tips—MT100, MT400, MT410, MT600. Adaptor No. MW60.

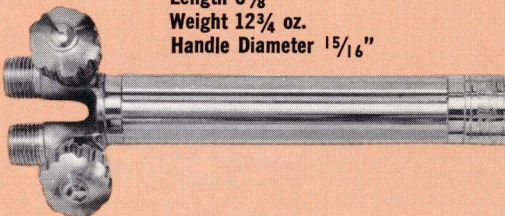
MW5

Length  $7\frac{3}{8}$ "  
Weight  $13\frac{3}{4}$  oz.  
Handle Diameter  $1\frac{5}{16}$ "



PW1

Length  $6\frac{5}{8}$ "  
Weight  $12\frac{3}{4}$  oz.  
Handle Diameter  $1\frac{5}{16}$ "



## AW60, MW60 & SW60 TORCH ADAPTOR

Fit welding torch bodies and make it possible to use all HANDI-HEET tips and accessories in respective torch bodies.

AW60 fits AW1 Torch Body to use all HANDI-HEET tips. Weight  $1\frac{3}{4}$  oz. Length  $2\frac{1}{16}$ ".

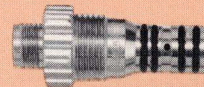
MW60 fits MW5 and PW1 Torch Bodies to use all HANDI-HEET tips. Weight  $2\frac{1}{4}$  oz. Length  $3\frac{3}{16}$ ".

SW60 fits SW1, SW10 and SW2 Torch Bodies to use all HANDI-HEET tips. Weight  $4\frac{3}{4}$  oz. Length  $2\frac{5}{8}$ ".

AW60

MW60

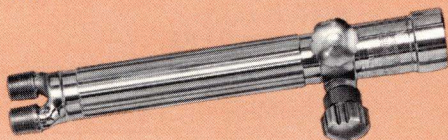
SW60



**NO WRENCH NEEDED** to seat tips or cutting assemblies in Smith's Torch Bodies. Smith's pioneered the use of "O" type seal rings on the back ends and mixing sections of cutting assemblies and welding tips.



## AW1



Length 5 3/4"  
Weight 6 1/8 oz.  
Handle Diameter 1 1/16"

## AW1 AIRLINE TORCH BODY

Preferred by welders everywhere for its small size and light weight. Created for the aircraft industry but widely used for all types of light metal welding and fabrication. Valves at front end of handle for easy, one-hand adjustment. Gas inlets fit R13 & R14 "A" size hose connection nuts—3/8"-24 right and left hand. Shipping Weight: 8 1/2 oz.

FITS: Cutting Assemblies—AC305 and AC309. Welding Tips—AW200 Series. Multi-tip Mixer (Gooseneck) AW650. Screw-in Welding Tip Ends 2-10 (Acet.), 4LP-10LP (Propane). Heating Tip—AT605. Accessory Tips—AT100, AT400, AT410, AT600. Adaptor No. AW60.

## AW6



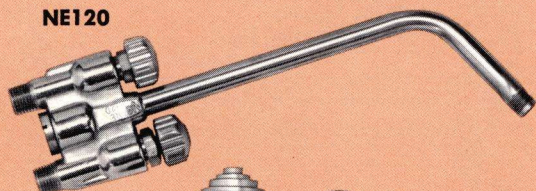
Length 7 1/4"  
Weight 12 3/8 oz.  
Handle Diameter 1 3/16"

## AW6 LITE-O-MATIC BODIES

Torch body has automatic valve which opens when lever is pressed and closes when lever is released. A small pilot flame burns at tip end to ignite flame the instant the lever is pressed. Lever can be locked in place for prolonged welding operations. Simple, trouble free mechanism. Gas inlets fit R13D & R14D "B" size hose connection nuts—1/4"-18 right and left hand. Shipping Weight: 14 1/2 oz.

FITS: Welding Tips—AW200 Series. Multi-tip Mixer (Gooseneck) AW650. SCREW-IN WELDING TIP ENDS 2-12 (Acet.), 4LP-12LP (Propane).

## NE120



Length 6 3/8"  
Weight 5 1/8 oz.

NE124

NE123

NE122

NE121

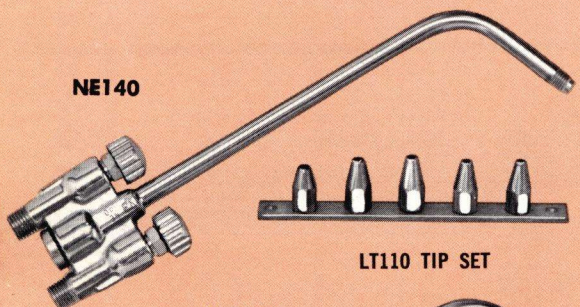
## NE120 GAS and COMPRESSED AIR TORCH

Small, light weight (5 oz.) torch for use by radiator shops, dental laboratories, jewelers, sheet metal shops, electronic equipment manufacturers. Uses compressed air at 10 to 20 p.s.i. with fuel gases such as acetylene, hydrogen, manufactured or natural gas and propane. Flames can be adjusted to fine point or brush type. Gas inlets fit R13 & R14 "A" size hose connection nuts—3/8"-24 right and left hand. Uses tips listed below.

Tip No.	Length	Weight	Burns Fuel Gas:
NE121	1 7/32"	1 oz.	Acetylene or Hydrogen
NE122	1 13/32"	2 oz.	Natural or Manufactured Gas & Propane
NE123	1 1/2"	3 oz.	Natural or Manufactured Gas & Propane
NE124	1 13/16"	4 oz.	Natural or Manufactured Gas & Propane

NE120 Shipping Weight: 5 3/4 oz.

## NE140



LT110 TIP SET

Length 7 3/8"  
Weight 5 1/4 oz.

NE150

NE50 TIP SET

Length 7 3/4"  
Weight 5 1/4 oz.

## NE140 and NE150 GAS and OXYGEN TORCHES

These small, light weight torches are identical except for the fuel gas nozzles.

NE140 burns acetylene or hydrogen at minimum pressure of 1 psi and oxygen at 1 to 10 psi. For lead burning or light brazing and welding.

NE141 TORCH SET: Consists of NE140 torch, one each tip ends LT101 through LT106, plus LT109 tip holder. Weight 8 oz.

LT110 TIP SET: LT109 holder plus 5 tip ends; LT101, LT102, LT104, LT105 and LT106. NE150 torch burns manufactured or natural gas or propane at pressure of at least 4 oz. to 10 PSI with oxygen at 20 PSI. For battery work, silver brazing and soft soldering.

NE157 TORCH SET. Consists of NE150 torch, one each tip ends NE151 through NE156 plus LT109 tip end holder. Weight 8 oz.

NE50 TIP SET: LT109 tip end holder plus 5 tip ends; NE151, NE152, NE154, NE155 and NE156.

LT109 TIP END HOLDER. Fits LT101 to LT106 tip ends or NE151 to NE156 tip ends.

## TIP ENDS FOR NE140

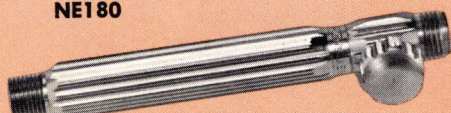
Stock No.	Drill Size
LT101	#74
LT102	#70
LT103	#63
LT104	#56
LT105	#54
LT106	#52

## TIP ENDS FOR NE150

Stock No.	Drill Size
NE151	#50
NE152	#48
NE153	#44
NE154	#36
NE155	#30
NE156	1/8"

NE140, NE150 Shipping Weight: 5 7/8 oz.

## NE180



Length 5 3/8"  
Weight 8 1/2 oz.

## NE180 HANDI-HEET TORCH BODY

Designed to burn acetylene or LP gas with atmospheric air. No oxygen or air tank needed. This torch body, when equipped with any of the air-acetylene or air-LP gas tips has dozens of uses for heating, soldering, thawing, paint burning, starting charcoal broiler fires, frying steaks and many others. Inlet fits R12 or R14D "B" size hose connection nut—7/16"-18 left hand thread. Shipping Weight: 9 1/4 oz.



## "SOFT-FLAME" tips make welding easier because:

- Heat is concentrated for better "puddle" control.
- There is better penetration without burning through base metal.
- Molten weld metal is protected from atmospheric oxidation.
- Popping or flashbacks are practically eliminated even at short flame settings.
- Swaged construction provides mirror-smooth passages, resulting in flames free of turbulence.
- Tubing is heavy wall copper for greater resistance to reflected heat.
- Individual mixing section for each tip assures best oxygen to acetylene ratio.

**SLIP-IN TIPS:** Change tips in six seconds. Hand tighten — NO WRENCH NEEDED!

### SILVER STAR (HEAVY DUTY) WELDING TIPS

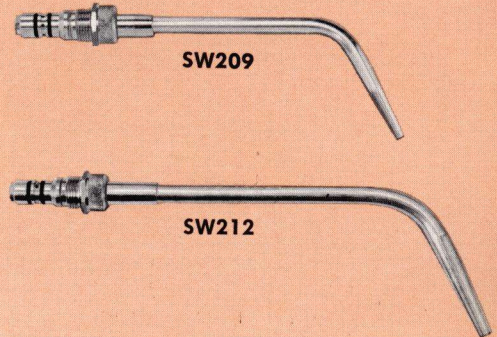
#### SW200 SERIES

For general and heavy welding and brazing. Use with medium pressure acetylene and oxygen. Tips bent to 63½° angle. Replaceable "O" rings: LW15 (pkg. of 6).

**USE IN:** SW1, SW10 and SW2 Torch Bodies. SW20 Torch Extension. Copper bent sections or mixing sections may be purchased separately by specifying piece desired and tip number.

**Note:** Welding Tips SW210-SW214 have extra-thick copper to withstand severe heat conditions.

TIP NUMBER	WELDING RANGE
SW201	1/32"
SW202	1/16"
SW203	to
SW204	3/32"
SW205	1/8"
SW206	5/32"
SW207	3/16"
SW208	1/4"
SW209	3/8"
SW210	1/2"
SW211	5/8"
SW212	7/8"
SW213	1" And
SW214	Over



#### SW600 SERIES

For cylinder head welding and other hard to get at areas. Tips have 70° angle bend. Use with medium pressure acetylene and oxygen. Replaceable "O" rings: LW15 (pkg. of 6).

**USE IN:** SW1, SW10 and SW2 Torch Bodies or SW20A Torch Extension.

SW609	3/8"
SW610	1/2"
SW611	5/8"
SW612	7/8"
SW613	1" And
SW614	Over



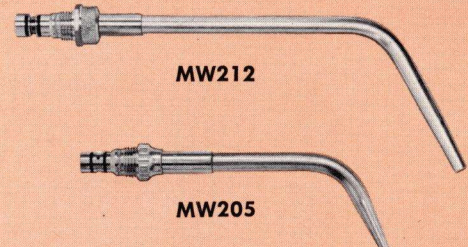
### PIPELINER (MEDIUM DUTY) WELDING TIPS

#### MW200 SERIES

For general medium duty welding. Use with medium pressure acetylene and oxygen. Tips bent to 63½° angle. Replaceable "O" rings: MW15 (pkg. of 6).

**USE IN:** MW5 and PW1 Torch Bodies.

MW201	1/32"
MW202	1/16"
MW203	to
MW204	3/32"
MW205	1/8"
MW206	5/32"
MW207	3/16"
MW208	1/4"
MW209	3/8"
MW210	1/2"
MW211	5/8"
MW212	7/8"



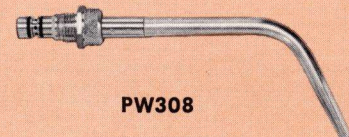
### PIPEWELDERS' SPECIAL (MEDIUM DUTY) WELDING TIPS

#### PW300 SERIES

For general pipe welding and medium duty welding. Designed to best perform the special jobs required of experienced pipewelders. Tips are shorter in length than the MW200 series. Use with medium pressure acetylene and oxygen. Replaceable "O" rings: MW15 (pkg. of 6).

**USE IN:** PW1 or MW5 Torch Bodies.

TIP NUMBER	METAL THICKNESS	PIPE DIA.
PW306	5/32"	1"
PW307	3/16"	2"
PW308	1/4"	2½"
PW309	3/8"	3"
PW310	1/2"	4"



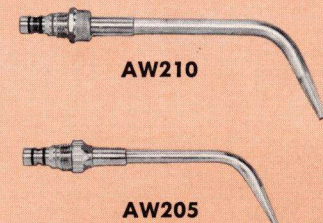
### AIRLINE (LIGHT DUTY) WELDING TIPS

#### AW200 SERIES

For general light duty welding. "SOFT-FLAME" characteristics and rugged construction as in other SMITH'S tips but are lighter and easier to handle. Use with medium pressure acetylene and oxygen. Replaceable "O" rings: AW15 (pkg. of 6).

**USE IN:** AW1 Torch Body and AW6 Lite-O-Matic Torch Body.

AW2000	Up
AW200	to
AW20	1/32"
AW201	
AW202	Up
AW203	to
AW204	3/32"
AW205	1/8"
AW206	5/32"
AW207	3/16"
AW208	1/4"
AW209	3/8"
AW210	1/2"





MW600



Length 7"  
Weight 5½ oz.

MW650



Length 8¾"  
Weight 7⅝ oz.

## MULTI-TIP MIXERS AND TIP ENDS

Multi-Tip mixers and replaceable tip ends offer SOFT-FLAME welding performance comparable to other Smith welding tips. Smith mixers are nickel plated for greater heat reflectability and cooler operation. The economical initial cost of the tip ends have made the mixer and tip end combinations popular in some production welding applications such as in automobile manufacture.

### PIPELINER (MEDIUM DUTY) MULTI-TIP MIXERS

For general medium duty welding, brazing and soldering. Use with medium pressure fuel gases (either acetylene or LP-Gas) with oxygen. There are two mixers available for use with the medium duty Pipeliner torch body MW5 and Pipewelders Special torch body PW1.

#### MW600 MULTI-TIP MIXER

USE IN: MW5 or PW1 Torch Bodies.

USE TIP ENDS: #2 thru 6 (acetylene); #4LP, #6LP (LP-GAS). For welding and brazing range refer to chart for tip ends on this page.

#### MW650 MULTI-TIP MIXER

USE IN: MW5 or PW1 Torch Bodies.

USE TIP ENDS: #8, #10, #12 (Acetylene); #8LP, #10LP and #12LP (LP-GASES). For welding and brazing range refer to chart for tip ends on this page.

Replaceable "O" rings for MW600 and MW650: MW15 (pkg. of 6)

MW600 shipping weight: 6 oz.

MW650 shipping weight: 8½ oz.

### AIRLINE (LIGHT TO MEDIUM DUTY) MULTI-TIP MIXERS

#### AW650 Multi-Tip Mixer

For general welding and brazing. Use with medium pressure fuel gases (either acetylene or LP-Gas) with oxygen. The extra length of this mixer provides the welder with an added heat barrier when working with the larger welding tips and with all LP-Gas tips.

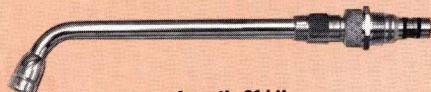
SHIPPING WEIGHT 6 oz.

Replaceable "O" rings: AW15 (pkg. of 6 rings).

USE IN: AW1 Torch Body (Maximum tip end #10, Acetylene or LP-Gas); AW6 Torch Body (Maximum tip end #12, Acetylene or LP-Gas).

USE TIP ENDS: #2 thru #12 (Acetylene), #4LP thru #12LP (LP-Gas). For welding and brazing range refer to chart immediately below.

AW650



Length 8½"  
Weight 5½ oz.

### TIP ENDS FOR MULTI-TIP MIXERS



End  
View



TIP ENDS

These screw-in copper TIP ENDS will fit any of the MULTI-TIP MIXERS listed on this page. Check information listed above to assure that the proper size Tip End, Multi-Tip Mixer and Torch Body combination is used.

MAXIMUM SHIPPING WEIGHT of one tip end: 1⅝ oz.

ACETYLENE Tip Ends	LP-GAS Tip Ends	Welding or Brazing Range
# 2 # 4	# 4LP	1/16" to 3/32"
# 6	# 6LP	1/8" 5/32"
# 8	# 8LP	3/16" 1/4"
# 10	# 10LP	3/8" 1/2"
# 12	# 12LP	5/8" 7/8"

### WELDING TIP ORIFICE SIZES

Illustrated below are the orifice sizes (the hole at the welding tip flame end) of Smith's welding tips and tip ends. The solid black circle is the actual full size of the orifice and may prove useful in selecting, identifying or comparing tip sizes.

WELDING TIP ORIFICE (Full Size)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WELDING TIP STOCK NUMBER	AW2000	AW200	AW20	AW201 MW201 SW201	AW202 MW202 SW202 #2	AW203 MW203 SW203	AW204 MW204 SW204 #4	AW205 MW205 SW205	AW206 MW206 PW306 SW206 #6	AW207 MW207 PW307 SW207	AW208 MW208 PW308 SW208 #8	AW209 MW209 PW309 SW209	AW210 MW210 PW310 SW210 #10	MW211 SW211	MW212 SW212 #12	SW213	SW214
TIP CLEANER DRILL SIZE	78	76	74	71	69	67	63	57	56	54	52	49	44	40	34	30	26
WELDING RANGE	Up to 1/32"				1/16" to 3/32"			1/8"	3/32"	1/4"	3/8"	1/2"	5/8"	7/8"	1"	and over	



## USED IN WELDING TORCH BODIES

Smith's multi-flame and single flame heating tips are designed to provide large volumes of heat for applications such as: bending, straightening, pre-heating, brazing, shrinking, forming and many others.

Heating tips provide significant cost savings in many applications. By

providing great amounts of heat, heating tips do the job faster and cut labor time to a minimum.

For proper performance use the recommended pressures for each tip. For proper performance use the recommended pressures for each tip and with adequate gas supply. Each heating tip is flame tested at the factory.

HEATING &  
SPECIAL TIPS

### SILVER STAR (HEAVY DUTY) HEATING TIPS

Acetylene and Oxygen (Medium Pressure)

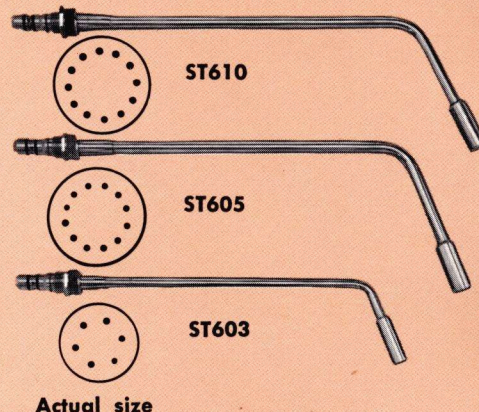
Multi-flame heating tips are designed to provide large volumes of concentrated heat for bending, straightening, shrinking, forming and many other operations. Smaller sizes are often used for bronze welding or for applying hard facing metal to large areas. These tips fit SW1, SW10 and SW2 torch bodies and SW20A extension.

Stock No.	No. of Flames	Drill Size	Acetylene Pressure	Oxygen Pressure	Fuel C.F.H.	Oxygen C.F.H.	Net B.T.U. Output
ST603	7	#56	4	4	50	55	71,650
ST605	12	#57	6	7	87	96	124,671
ST610	12	#54	10	10	136	150	194,888

ST603: length 15 3/4", net weight 15 3/4 oz., shipping wt. 18 1/2 oz.

ST605: length 18 3/8", net weight 1 lb. 6 oz., shipping wt. 1 3/4 lbs.

ST610: length 18 1/2", net weight 1 lb. 6 oz., shipping wt. 1 3/4 lbs.



### PIPELINER (MEDIUM DUTY) HEATING TIPS

Acetylene and Oxygen (Medium Pressure)

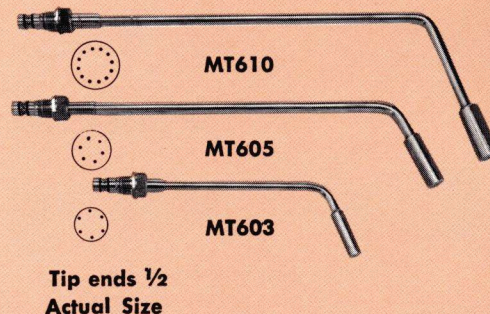
Multi-flame heating tips in three sizes to fit MW5 Pipeliner and PW1 Pipewelders' torch bodies. Used for general heating of metals, brazing, hard surfacing and many other applications.

Stock No.	No. of Flames	Drill Size	Acetylene Pressure	Oxygen Pressure	Fuel C.F.H.	Oxygen C.F.H.	Net B.T.U. Output
MT603	7	#64	5	6	28	31	40,124
MT605	7	#56	9	8	51	57	73,083
MT610	12	#57	9	28	90	100	128,970

MT603: length 9 7/8", net weight 7 1/8 oz., shipping wt. 8 1/8 oz.

MT605: length 15 5/8", net weight 13 1/8 oz., shipping wt. 1 lb.

MT610: length 17 1/2", net weight 17 oz., shipping wt. 1 lb. 6 oz.



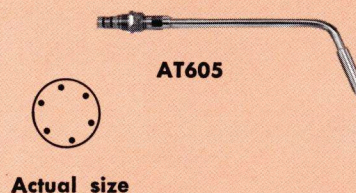
### AIRLINE (LIGHT DUTY) HEATING TIP

Acetylene and Oxygen (Medium Pressure)

Multi-flame heating tip burns acetylene and oxygen for light duty heating, brazing and applying hard facing metals. Fits AW1 Airline torch body and AW6 Lite-O-Matic torch body.

Stock No.	No. of Flames	Drill Size	Fuel Gas Pressure	Oxygen Pressure	Fuel C.F.H.	Oxygen C.F.H.	Net B.T.U. Output
AT605	7	#64	10	10	29	32	41,557

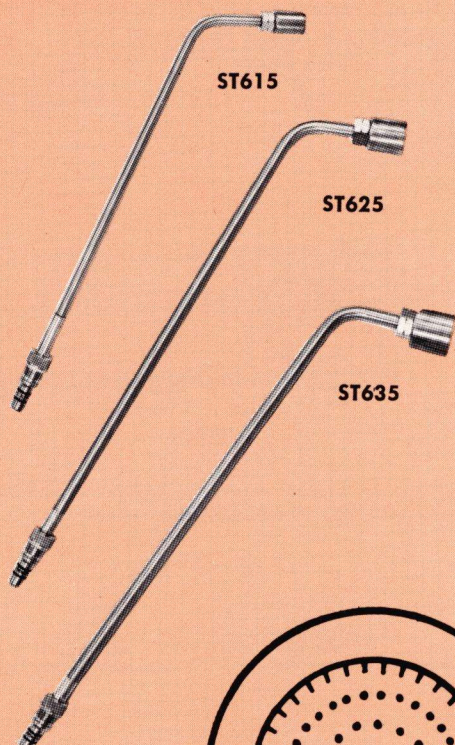
AT605: length 9 7/8", net weight 6 1/2 oz., shipping wt. 7 5/8 oz.



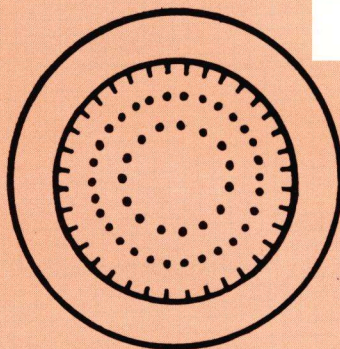


#### SILVER STAR LP-GAS MULTI-FLAME HEATING TIPS

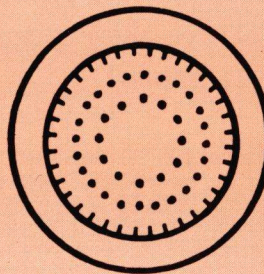
HEATING &  
SPECIAL TIPS



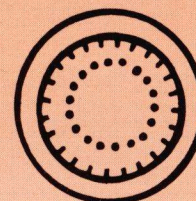
ACTUAL SIZE



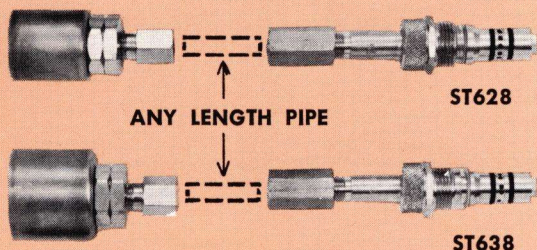
ST635 & ST638 heads



ST625 & ST628 heads



ST615 head



Smith's offers three heating tips covering the range of medium duty heating up to very heavy heating with low cost medium pressure LP-Gases (propane, natural gas). These heating tips provide high amounts of heat to get heating jobs done faster, thereby saving on expensive labor time. Fit SW1, SW2 and SW10 torch bodies.

ST635 is a very high volume heating tip and is to be used only with the SW10 torch body.

**MANIFOLDING CYLINDERS FOR CONTINUOUS OPERATION.** Since the maximum amount of propane which can be withdrawn from a 100 lb. propane tank\* at 60° is 46 CFH, we recommend the manifold of 4 cylinders for the ST625 tip and 7 cylinders for the ST635 tip or one 500 lb. cylinder. It is also recommended that 2 oxygen cylinders be manifolded for continuous operations.

\* $\frac{1}{3}$  full.

Tip No.	Fuel Gas	App. Pressure (PSI) with Valves OPEN		Consumption (CFH) per hour		Net BTU Output	Shipping Weight
		Fuel Gas	Oxygen	Fuel Gas	Oxygen		
ST615	Propane	13	40	105	387	281,000	1½ lbs.
	Nat. Gas	9	20	121	216	89,376	
ST625 & ST628	Propane	25	60	178	611	411,002	2½ lbs.
	Nat. Gas	25	50	334	540	304,608	
(1) ST635 & ST638	Propane	20	56	290	1020	676,000	2½ lbs.
	Nat. Gas	23	45	520	860	474,000	

(1) Use ST635 heating tip only with the SW10 torch body. For maximum performance use  $\frac{3}{8}$ " I.D. hose and the H101PA fuel gas cylinder regulator. For line operation use one of the following fuel gas line regulators: H539A, H541A, H547A, or H549A.

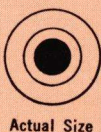
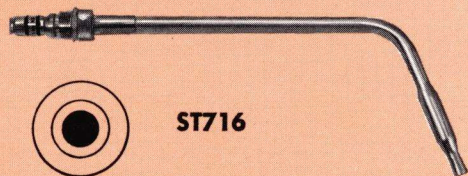
#### HEAD AND MIXER HEATING ASSEMBLIES

Custom built heating tips for maximum versatility in heating operations. Make any length heating tip... all that is required is to add the desired length of pipe (with  $\frac{1}{4}$ " NPT pipe thread on either end) and attach to the heating assemblies. Pipe is not supplied with assemblies.

ST628... Identical to the ST625 in performance. See chart above.

ST638... Identical to the ST635 in performance. Use only with the SW10 torch body. See chart above.

#### SINGLE FLAME LP-GAS HEATING TIPS (Medium Pressure)



ST716

Actual Size

Single flame high capacity tips for general heating operations, bending or straightening. Use with propane or natural gas and oxygen. Fit SW1, SW2 and SW10 torch bodies.

Stock No.	Fuel Gas	No. of Flames	Drill Size	Fuel Gas Pressure	Oxygen Pressure	Fuel CFH	Oxygen CFH	Shipping Weight
ST716	Propane	1	#13	10	40	90	360	1¼ lb.
	Nat. Gas	1	#13	10	50	170	270	
ST717	Propane	1	$\frac{1}{32}$ "	14	60	130	515	1¼ lb.
	Nat. Gas	1	$\frac{1}{32}$ "	18	60	245	390	



# LP-GAS HEATING TIPS

LOW PRESSURE



## INJECTOR STYLE MULTI-FLAME HEATING TIPS

These heating tips use low cost, low pressure NATURAL GAS with oxygen. The tips utilize the injector principle to provide fine performance and large volumes of heat at fuel gas pressure settings from 3 ounces per square inch (5 inches water pressure) up to 10 lbs. per square inch.

The National Board of Fire Underwriters requires a hydraulic back pressure valve to be used when the gas pressure is 1 pound or less. A line type regulator H539A, H541A, H547A, H549A should be used on line installations when supply pressure is over 1 pound. Use Smith's high volume H101PA regulator or cylinder gas source.

ST630 — A medium capacity heating tip. Fits SW1, SW2, SW10 torch bodies and SW20 torch extension.

ST640 — A high capacity heating tip. Use only with SW10 torch body. For maximum performance use  $\frac{3}{8}$ " I.D. hoses.

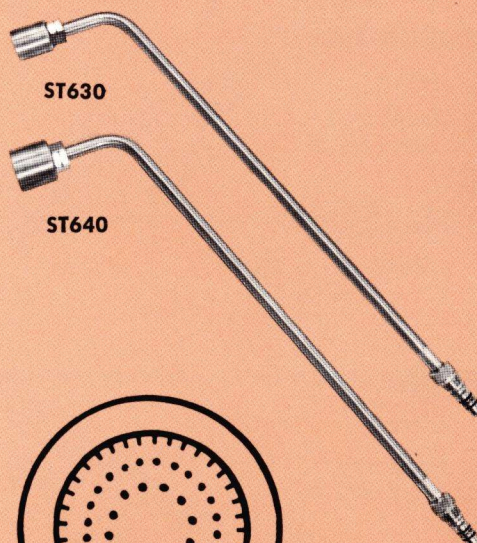
Stock No.	Approximate Pressure with Torch Valve Open		Consumption C.F.H.		Net BTU Output	Shipping Weight
	Nat'l Gas	Oxygen	Fuel	Oxygen		
ST630 & ST633	3 ounces to 10 PSI	30 PSI	107	190	98,000	2½ Lbs.
ST640 & ST643	3 ounces to 10 PSI	60 PSI	195	335	179,000	2½ Lbs.

## HEAD AND MIXER HEATING ASSEMBLIES

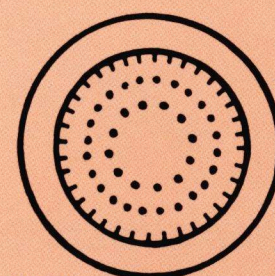
Custom built heating tips for maximum versatility in heating operations. Make any length heating tip... all that is required is to add the desired length of pipe (with  $\frac{1}{4}$ " NPT pipe thread on either end) and attach to the heating assemblies. Pipe is not supplied with assemblies.

ST633 ... Identical to the ST630 in performance. See chart above.

ST643 ... Identical to the ST640 in performance. Use only with the SW10 torch body. See chart above.

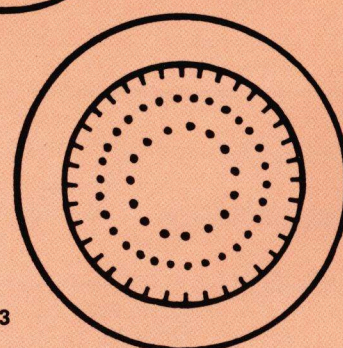


HEATING & SPECIAL TIPS



ACTUAL SIZE

ST630 & ST633



ST640 & ST643

## PREHEATING TORCH

COMPRESSED AIR WITH KEROSENE, DISTILLATE OR PROPANE

STOCK NO.	PREHEATING TORCH. Designed to produce large volume heat at low cost for preheating heavy castings, cylinder heads and blocks. Uses compressed air and produces a hot flame which may be varied from a few inches in length to several feet. Burns kerosene, distillate, or propane. Made in two sizes for varying heat requirements. Torch No. NE201 is recommended for average preheating in garage work.	SHIPPING WEIGHT
NE201	Preheating torch for average heating.	7¼ lbs.
NE211	Preheating torch NE201 with hose, less stand.	9¾ lbs.
NE221	Preheating torch NE201 with hose and stand.	16¾ lbs.
NE202	Preheating torch only for heavy heating.	10 lbs.
NE212	Preheating torch NE202 with hose, less stand.	12½ lbs.
NE222	Preheating torch NE202 with hose and stand.	19½ lbs.
NE213	6 ft. length special oil hose with connection.	½ lb.
NE214	12½ ft. length $\frac{1}{4}$ " air hose with 2 connections.	1½ lbs.
NE215	Adjustable stand for all preheating torches.	7 lbs.
Petroleum by-product gases (natural or bottle gas) may also be used as fuel in place of oil or kerosene. Gas must be supplied at 15 lbs. pressure with air pressure at minimum of 80 lbs.		

### AIR PRESSURE AND CONSUMPTION TABLE

Torch No.	Cons. CFH	Pressure PSI	Compressor Size
NE201	70-120	30-70	3½x3" $\frac{3}{4}$ Horse
NE202	135-280	40-70	3½x3" 1 Horse





### HEATING & SPECIAL TIPS



**LT100**

Length 6½"  
Weight 6¼ oz.



**LT400** Length 9⅞"  
Weight 6 oz.



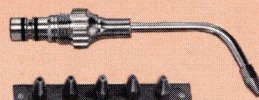
**LT410**

Length 16¼"  
Weight 10¾ oz.



**LT600**

Length 14¾"  
Weight 10¼ oz.



**MT100**

Length 5¾"  
Weight 3 oz.



**MT400** Length 9¼"  
Weight 3½ oz.



**MT410** Length 14¼"  
Weight 8 oz.



**MT600** Length 13⅞"  
Weight 8¼ oz.



**AT100**

Length 5¼"  
Weight 2½ oz.



**AT400** Length 8⅝"  
Weight 2½ oz.



**AT410** Length 14"  
Weight 7 oz.



**AT600** Length 13¾"  
Weight 6½ oz.

Special purpose tips are designed to increase the usefulness of SMITH'S Silver-Star, Pipe-liner, Pipewelders' Special and Airline welding torches. They slip into the torch body head and are as easy to use as a standard welding tip or cutting assembly and have a wide range of special uses.

### FOR USE IN SW1, SW2 and SW10 TORCH BODIES (Heavy Duty)

#### LT100 LEAD BURNING ASSEMBLY

Uses oxygen and acetylene gases. For lead welding, battery work, silver brazing and soldering. Comes with 6 tip ends Numbers LT101, LT102, LT103, LT104, LT105, LT106. (Drill sizes #74, #70, #63, #56, #54 & #52 respectively.)

#### LT400 INSTRUMENT TIP

Uses oxygen and acetylene gases. Has 6" flexible tube for radiator core work and reaching other hard-to-get-at places.

#### LT410 INSTRUMENT TIP

Uses oxygen and acetylene gases. 11" annealed copper tube can be bent to any desired shape. For instrument and piping work, silver brazing, bronze and fusion welding. Supplied LESS tip end. Order tip ends separately: uses ST420 Series listed in the chart below.

#### ST420 Series Tip End Data Chart

Tip End No.	Welding Range	Pressure Ea. Gas
ST420-0	up to 1/32"	3
ST420-2	up to 3/32"	3
ST420-4	3/32"	5
ST420-6	5/32"	5

Tip End No.	Welding Range	Pressure Ea. Gas
ST420-8	¼"	8
ST420-10	½"	11
ST420-12	⅞"	11
ST420-13	1" and over	11

#### LT600 TWIN FLAME TIP

Uses oxygen and acetylene gases. 10" flexible tubes may be bent to apply heat from two directions for soldering, heating, shrinking jobs. "Y" section (No. U600) can be purchased separately. Shipped with two LT103 tip ends but can be used with any of the sizes from LT101 to LT106.

### FOR USE IN MW5 and PW1 TORCH BODIES (Medium Duty)

#### MT100 LEAD BURNING ASSEMBLY

For lead welding, battery work, silver brazing and soldering. Comes with 6 interchangeable tip ends and holder. Tip ends: LT101, 102, 103, 104, 105, 106. Uses oxygen and acetylene gases.

#### MT400 INSTRUMENT TIP

Has 6" flexible tube for radiator soldering or other "close quarter" work. MT401: tip end only. MT402: mixing section.

#### MT410 INSTRUMENT TIP

Uses oxygen and acetylene gases. 11" annealed copper tube can be bent to any desired shape. Supplied LESS tip end. Order ST420 Series tip ends separately. See chart listing on this page under LT410 Instrument Tip. Use sizes 0 through 12 with the MT410.

#### MT600 TWIN FLAME TIP

Handy for soldering or heating circular objects. Has two 10" annealed copper tubes. Uses LT101 to LT106 tip ends; shipped with two LT103 tip ends.

### FOR USE IN AW1 and AW6 TORCH BODIES (Light Duty)

#### AT100 LEAD BURNING ASSEMBLY

Burns oxygen and acetylene. For battery work, light welding, soldering, brazing, lead welding. Comes with tip end holder and 6 interchangeable tip ends, LT101 to LT106 inclusive.

#### AT400 INSTRUMENT TIP

Burns oxygen and acetylene. Has 6" flexible tube. For soldering or light brazing in hard-to-reach places like radiator cores or instrument panels.

#### AT410 INSTRUMENT TIP

Uses oxygen and acetylene gases. 11" annealed copper tube can be bent to any desired shape. For instrument and piping work, silver brazing, bronze and fusion welding. Supplied LESS tip end. Order ST420 Series tip ends separately. See chart listing on this page under the LT410 Instrument Tip. Use sizes 0 through 10 with the AT410.

#### AT600 TWIN FLAME TIP

Burns oxygen and acetylene. Has two 10" flexible tubes each equipped with LT103 tip end. For same purposes as LT600.



## SILVER-STAR CUTTING ASSEMBLIES (Heavy Duty)

Quickly convert SW1, SW10 or SW2 torch bodies into efficient cutting torches that are capable of cutting steel up to 6" thick. In addition, there are tips to fit these assemblies for light metal cutting, rivet cutting, gouging, rivet blowing and other special jobs.

**"O" RING SEATING.** Assemblies slip into torch body head. Three back end seal rings make gas-tight seat with just finger pressure on back end nut. No wrench needed.

**FLO-TROL PROTECTION.** Exclusive FLO-TROL check valve in butt forging guards against damage to seat and other mechanisms caused by accidental reverse flow of gas. Found only in Smith's cutting assemblies.

**SLIP-IN CUTTING TIPS.** No threads to wear and cause trouble. Flexible, recessed seats on cutting tips seat with just finger tip pressure on tip nut. Wide variety of types and sizes to choose from. See cutting tip section for details.

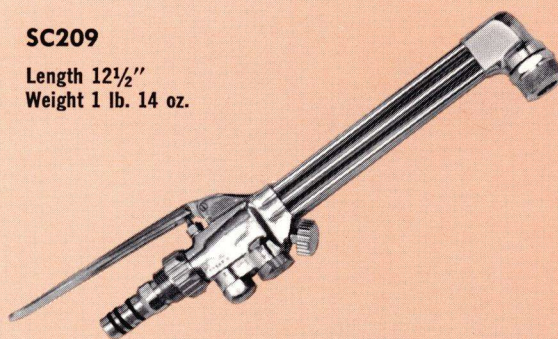
**SOLID CONSTRUCTION.** Pressure forged head and butt forgings combined with high strength stainless steel tubes—all silver brazed into a solid piece for best resistance to wear or damage.

**USE VARIETY OF FUEL GASES.** By simply changing tips, propane and natural gas as well as acetylene, can be used. See specifications in table below.

Model No.	Style	Head Angle	Length	Shipping Weight	Use All These Tips:
SC200	Standard	180°	13½"	2 lbs. 6 oz.	OXY-ACETYLENE: SC10-0 to SC10-4, SC12-000 to SC12-5, SC13-1, SC13-3, SC14-1, SC17-000, SC17-00, SC17-0, SC17-2, SC56-00 to SC56-4, SC80-1, SC80-3, SC110 OXY-LP-GAS: SC50A-00 to SC50A-4, SC46-1 to SC46-4, SC22-1, SC23-1, SC24-1, SC112
SC205	Standard	75°	12¾"	2 lbs.	
SC209	Standard	90°	12½"	2 lbs.	
SC505	Sidewinder	75°	12¾"	2¼ lbs.	
SC509	Sidewinder	90°	12½"	2¼ lbs.	

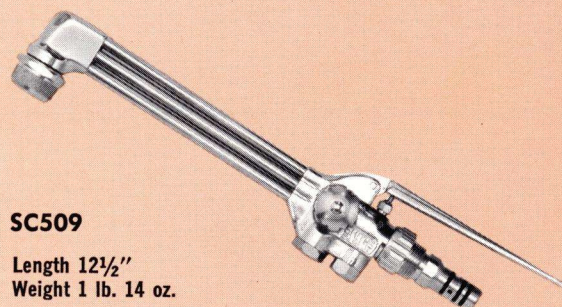
### SC209

Length 12½"  
Weight 1 lb. 14 oz.



### SC509

Length 12½"  
Weight 1 lb. 14 oz.



CUTTING  
ASSEMBLIES

## PIPELINER CUTTING ASSEMBLIES (Medium Duty)

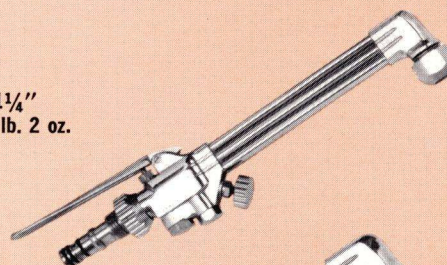
Fit MW5 and PW1 torch bodies with a cutting range up to 3" steel. Same safety and money saving convenience features as Silver-Star models. "O" Ring Seating—FLO-TROL Protection—Slip-in cutting tips—Solid Construction—Silver brazed joints.

MC409 is used in Big 98LP outfits and MC509 in Big 98 outfits. MC505 and MC509 models use a variety of oxy-acetylene tips as listed below. MC409 uses SC series tips for oxy-propane and oxy-acetylene. These models will handle most of the hand cutting jobs commonly encountered. Choice of 75° or 90° head angles. See chart below for specifications.

Model No.	Style	Head Angle	Length	Shipping Weight	Use All These Tips:
MC505	Pipelinier	75°	117/16"	1 lb. 6 oz.	MC10-00 to MC12-4, MC17-000, MC17-00, MC17-0, MC17-2, MC15-3, MC13-3
MC509	Pipelinier	90°	11¼"	1 lb. 6 oz.	
MC409	Pipelinier	90°	95/16"	1 lb. 10 oz.	OXY-ACETYLENE: SC10-0 to -4, SC12-000 to -4, SC14-1, SC17-000, SC17-00, SC17-0, SC17-2, SC15-1, SC56-00 to SC56-3. OXY-PROPANE: SC50A-00 to -3, SC22-1, SC23-1

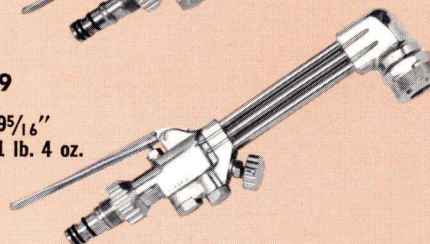
### MC509

Length 11¼"  
Weight 1 lb. 2 oz.



### MC409

Length 95/16"  
Weight 1 lb. 4 oz.







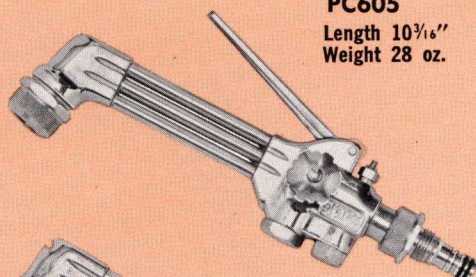
# CUTTING ASSEMBLIES

NWSA 220

## CUTTING ASSEMBLIES

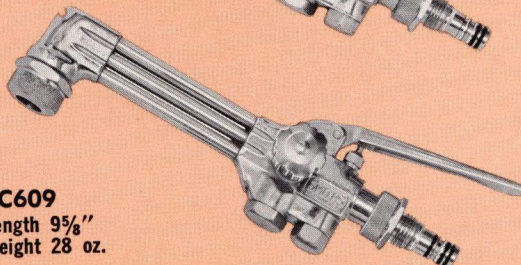
### PC605

Length 10 $\frac{3}{16}$ "  
Weight 28 oz.



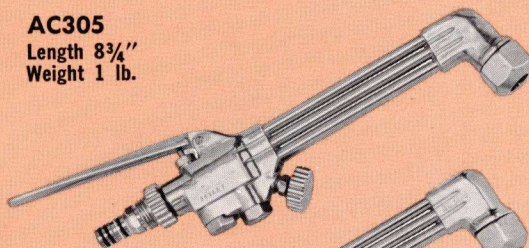
### PC609

Length 9 $\frac{5}{8}$ "  
Weight 28 oz.



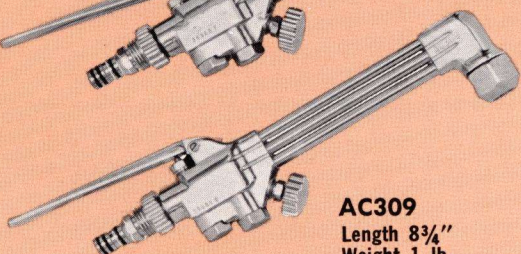
### AC305

Length 8 $\frac{3}{4}$ "  
Weight 1 lb.



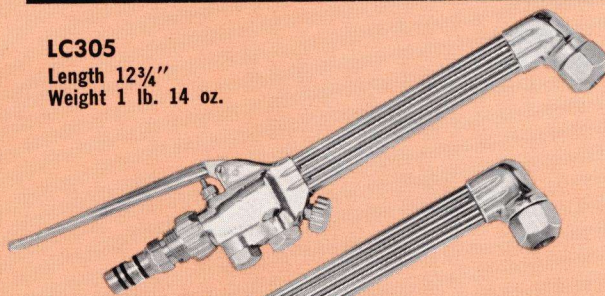
### AC309

Length 8 $\frac{3}{4}$ "  
Weight 1 lb.



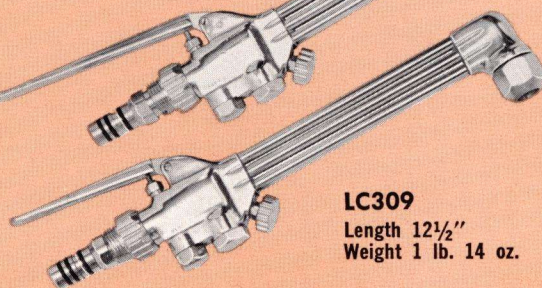
### LC305

Length 12 $\frac{3}{4}$ "  
Weight 1 lb. 14 oz.



### LC309

Length 12 $\frac{1}{2}$ "  
Weight 1 lb. 14 oz.



### N230

Length 7 $\frac{5}{8}$ "  
Weight 13 $\frac{3}{4}$  oz.

## PIPEWELDERS' SPECIAL CUTTING ASSEMBLIES (Medium Duty)

Designed and built to the exacting requirements of professional pipewelders. Shorter than standard assemblies; ideal for use in "close quarter" work where most pipe cutting and joining is done. Made for use in PW1 and MW5 torch bodies, they incorporate all of the features of the SILVER-STAR series. Oxygen preheat control valve is on the left side of the butt forging for ease in adjustment and use in "tight" places. Cutting jet lever "flops" over so it can't catch on objects when torch is dragged by the hose.

Use wide variety of oxy-acetylene and oxy-propane tips.

### SPECIFICATIONS FOR PIPEWELDERS' SPECIAL CUTTING ASSEMBLIES

Model No.	Head Angle	Length (less lever)	Shipping Weight	Use All These Tips:
PC605	75°	10 $\frac{3}{16}$ "	2 lbs. 1 oz.	SC10-0 to SC10-4, SC12-000 to SC12-4, SC50A-00 to SC50A-3, SC56-00 to SC56-3, SC14-1, SC17-000 to SC17-2,
PC609	90°	9 $\frac{5}{8}$ "	2 lbs. 1 oz.	SC15-1, SC23-1, SC13-1, SC13-3, SC110, SC46-1 to SC46-3

## AIRLINE CUTTING ASSEMBLIES (Light Duty)

Fits into the AW1 torch body to form a small light weight cutting torch with a capacity up to 1 $\frac{1}{2}$ " steel. The back end slips into the torch body head and is held in place by threaded nut. Three seal rings on back end keep gases properly channeled. Exclusive FLO-TROL check valve prevents damage caused by accidental reverse flow of gases. Uses the same MC series slip-in style tips as used in MC505 and MC509 assemblies. Safety and economy features of all other Smith's cutting assemblies are inherent in the Airline series as well.

### SPECIFICATIONS FOR AIRLINE CUTTING ASSEMBLIES

Model No.	Head Angle	Length	Shipping Weight	Use All These Tips:
AC305	75°	8 $\frac{3}{4}$ "	1 lb. 4 ozs.	MC10-00 to MC12-3, MC17-000 to MC17-0, MC15-3, MC13-3.
AC309	90°	8 $\frac{3}{4}$ "	1 lb. 4 ozs.	

## "LC" CUTTING ASSEMBLIES (Heavy Duty)

These cutting assemblies use "LC series" threaded type cutting tips and fit SW1, SW10 and SW2 welding torch bodies. Select tip from those listed below. Equipped with Smith's FLO-TROL protection. Wrench is used to seat tips. Wrench is listed below.

Model No.	Head Angle	Length	Uses All These Tips:
LC305	75°	11"	LC0-4 to LC4-4, LC0-6 to LC4-6, LC61-0, LC62-0, LC51-0, LC52-0, LC72-0 (all for use with oxy-acetylene gases). For oxy-propane use: LC46-1 to LC46-4. Total cutting range $\frac{3}{32}$ " to 4".
LC309	90°	10 $\frac{3}{4}$ "	

Shipping Weight: 2 lbs.

## N230 MULTI-PURPOSE WRENCH

This five opening wrench is used with welding torches and cutting torches. Has openings to fit "LC" cutting tip nut, regulator inlet connection nuts, "A" and "B" size hose connection nuts, wrench slot on "LC" cutting tips, tip nuts and tip ends for Multi-Tip mixers.



# CUTTING TORCHES

## "Silver Star"



NWSA 220

### Medium Pressure Acetylene or LP-Gas

Medium pressure fuel gas torches designed for use in repair shops and industrial plants where cutting capacity of 12" is adequate. They are light in weight but durable enough to stand the rigors of ordinary wear and tear.

#### FEATURES:

#### CAPACITY 12"

A full line of tips for general cutting of steel up to 12": gouging, rivet burning and many other operations are possible. Can be used with acetylene, LP GASES (propane, etc.), natural gas and MAPP® gas at 5 to 10 PSI pressure.

#### FEW MOVING PARTS

Simplified design and reduced number of moving parts make for longer life with fewer lost hours for repairs. Most repairs can be made on the job. Low cost repair kit available for convenient field repairs. (SC100)

#### REVERSIBLE CUTTING JET LEVER

Handle turns so that oxygen cutting jet lever can be used in "over" or "under" position—your choice. In "under" position a trigger can be used if desired.

#### BUTTON STYLE TORCHES (Standard 20½" length)

Move oxygen cutting jet button forward with thumb to lock in cutting position. Choice of 90°, 75° or 180° head.

#### BUTTON STYLE TORCHES (12" Length)

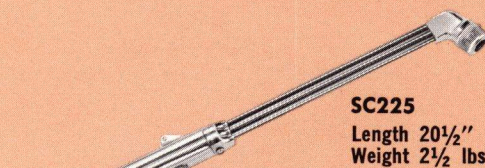
These torches used with the SC81-1 or SC81-3 (stubby) tips are ideal for those "hard to get at" locations. Can be used with as little as 3" head room.

#### USES SLIP-IN TIPS

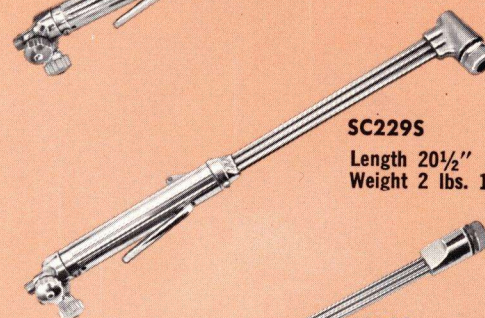
SMITH'S was the first equipment to use flexible, recessed seats in cutting tips. Seats are replaceable when they become worn. You don't need a wrench to seat these tips in the torch head.

#### AVAILABLE WITH STAINLESS STEEL HEADS

Torches have forged brass heads as standard equipment. Stainless steel head is available. Order by number SC225S (75°) or SC229S (90°).



**SC225**  
Length 20½"  
Weight 2½ lbs.



**SC229S**  
Length 20½"  
Weight 2 lbs. 14 oz.



**SC220**  
Length 21"  
Weight 3 lbs.



**SC279**  
Length 27"  
Weight 2 lbs., 12 oz.



**SC429**  
Length 20½"  
Weight 2 lbs. 10 oz.

TORCH  
BODIES

### SILVER STAR HAND CUTTING TORCHES—Medium Pressure (Fuel Gas) Type

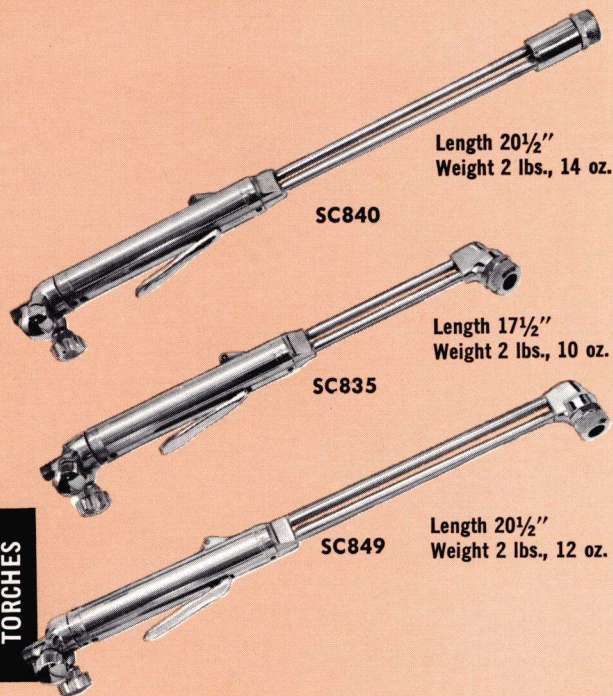
Model No.	Head Angle	Length	Cutting Jet Control Style	Shipping Weight	Use all these tips
SC175	75°	17"	Lever	3 lbs.	FOR OXY-ACETYLENE: SC10-000 to SC10-5, SC12-000 to SC12-6, SC14-1, SC14-3, SC17-000, SC17-00, SC17-0, SC17-2, SC15-1, SC15-2, SC13-1, SC13-3, SC13-5, SC16-4, SC56-00 to SC56-6, SC110, SC115B, SC125A, SCW103 to SCW109, SCH-1 to SCH-6, SC80-1, SC80-3, SC81-1, SC81-3. FOR OXY-PROPANE (LP or Natural Gas): SC50A-00 to SC50A-6, SC22-1, SC22-2, SC23-1, SC23-3, SC23-5, SC24-1, SC24-3, SC46-1 to SC46-4, SC112.
SC179	90°	17"		3 lbs.	
SC220	180°	21"		3 lbs. 9 oz.	
SC225	75°	20½"		3 lbs. 4 oz.	
SC225S	75°	20½"		3 lbs. 9 oz.	
SC229	90°	20½"		3 lbs. 4 oz.	
SC229S	90°	20½"		3 lbs. 9 oz.	
SC275	75°	27"		3 lbs. 12 oz.	
SC279	90°	27"		3 lbs. 12 oz.	
SC365	75°	36"		3 lbs. 12 oz.	
SC369	90°	36"		3 lbs. 12 oz.	
SC425	75°	20½"	Button	3 lbs. 6 oz.	
SC429	90°	20½"		3 lbs. 6 oz.	
SC435	75°	12"		3 lbs.	
SC439	90°	12"		3 lbs.	



## CUTTING TORCHES "Silver Star" INJECTOR STYLE

Low Pressure Natural Gas, Manufactured Gas, City Gas, LP-Gas and Acetylene

CUTTING  
TORCHES



Length 20½"  
Weight 2 lbs., 14 oz.

SC840

Length 17½"  
Weight 2 lbs., 10 oz.

SC835

Length 20½"  
Weight 2 lbs., 12 oz.

SC849

### INJECTOR STYLE SILVER STAR CUTTING TORCHES

Designed to operate at low fuel gas pressures (low as 3 oz. per sq. inch or approximately 5" water pressure) and up to medium pressures of 1 to 25 PSI with natural gas, city gas, or LP-gases. Provides fast, quality cutting with low cost natural gas or propane. Cutting range up to 10" thick steel.

Clean head design provides clear view of cut with top torch balance. Uses quick changing Slip-In cutting tips — change tips in just 6 seconds. Cutting tip seats are recessed, cannot be damaged by dropping.

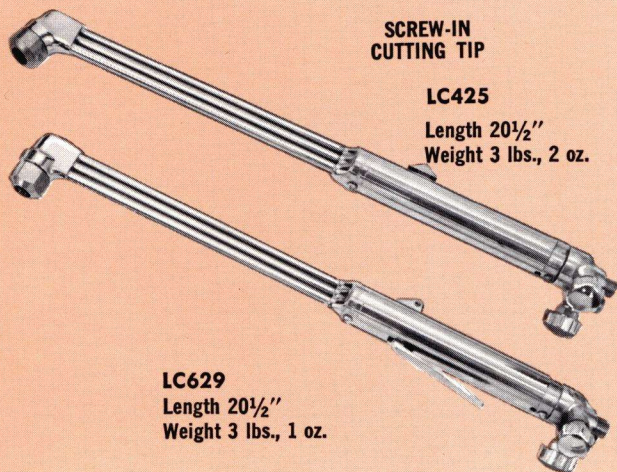
Injector cutting torch has exclusive Over or Under convertible cutting oxygen lever. Stainless steel tubes and silver soldered joints provide strength with light weight.

It is a requirement of the National Board of Fire Underwriters that injector torches must be attached to city or natural gas lines through an approved hydraulic flash arrestor when gas pressure is 1 PSI or less.

### SILVER STAR Injector Type HAND CUTTING TORCHES

Model No.	Head	Length	Shipping Weight	Use all these tips
SC830	180°	17½"	3 lbs., 9 oz.	NATURAL GAS/LP-Gas SC31-00 thru SC31-6 SC28-1 thru SC28-4 SC111 Heating Tip SC33-3 & SC33-5 Bent Gouging Tips SC34-1 & SC34-3 Bent Rivet Cutting Tips SC35-1 & SC35-2 Rivet Blowing Tips (Straight)
SC835	75°	17"	3 lbs., 2 oz.	
SC839	90°	17"	3 lbs., 2 oz.	
SC840	180°	21"	3 lbs., 11 oz.	
SC845	75°	20½"	3 lbs., 4 oz.	
SC849	90°	20½"	3 lbs., 4 oz.	

### "LC" HAND CUTTING TORCHES



SCREW-IN  
CUTTING TIP

LC425  
Length 20½"  
Weight 3 lbs., 2 oz.

LC629  
Length 20½"  
Weight 3 lbs., 1 oz.

#### Medium Pressure Acetylene or LP-Gases (use Screw-In Tips)

"LC" Style hand cutting torches have long been a favorite torch with operators preferring screw-in type cutting tips. Cutting capacity up to 12" steel.

Built to take the rugged service encountered in steel mills, shipyards, foundries and scrap salvage yards.

Choice of Button or Convertible Under-Over type cutting lever, with either 75° or 90° head.

Wide selection of cutting tips for Acetylene or LP-Gas, plus many special purpose tips for gouging, rivet cutting, riser cutting and sheet metal cutting.

Model No.	Head	Length	Shipping Weight	Use all these tips	
LC425	75°	20½"	3 lbs., 5 oz.	LCO-4 to LC4-4 LCO-6 to LC6-6 LC46-1 to LC46-6	LC61-0 to LC62-0 LC51-0 to LC52-0 LC72-0 to LC74-0 LC84-0 to LC85-0
LC429	90°	20½"	3 lbs., 5 oz.		
LC625	75°	20½"	3 lbs., 4 oz.		
LC629	90°	20½"	3 lbs., 4 oz.		



# CUTTING TORCHES (Rugged Duty) "Tuf Tony"

Using Medium Pressure Acetylene, LP-Gases or Natural Gas



NWSA 220

TUF-TONY'S ability to stay on the job under the toughest conditions is unmatched by any other torch on the market. Yet, it's cutting range is from light gauge sheet metal up to steel 24" thick!

Built to take a beating and "stay in there pitching," Tuf-Tony has stainless steel head and tubes, high strength cast aluminum alloy handle with non-slip adhesive hand-grips and forged brass butt—weighs only 3½ lbs. for the 21" torch. The 36" model is only slightly heavier.

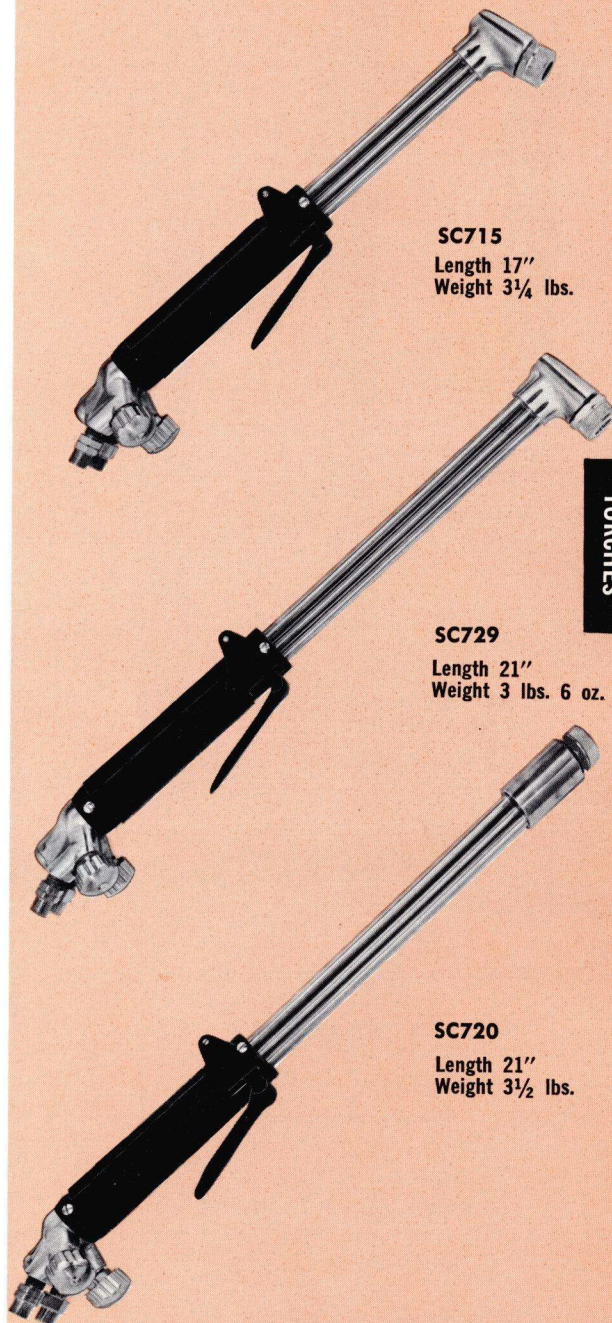
EASE-ON cutting jet smoothly and quickly eases into full force cutting, practically eliminating tip clogging blow-back in piercing operations.

The rugged durability built into this torch means less down time and lowest maintenance costs for your cutting dollar. Most cutting torches drop 20 to 30 pounds pressure between hose connections and torch head—TUF-TONY drops only 3 pounds which means increased efficiency, faster cutting, and savings in gas use.

WIDE SELECTION OF TIPS—106 tips can be used with the TUF-TONY.

## THESE QUALITY FEATURES MAKE TUF-TONY AN OUTSTANDING VALUE:

- STAINLESS STEEL HEAD HAS BUILT-IN "HAMMER HEAD"
- TOUGH STAINLESS STEEL TUBES, BEND AND WEAR RESISTANT
- ROTATABLE HANDLE—choice of under or over handle cutting lever position.
- EASE-ON CUTTING JET
- LOW PRESSURE DROP THROUGH TORCH (only 3 lbs.) MEANS MOST EFFICIENT AND ECONOMICAL CUTTING
- WIDE SELECTION OF SLIP-IN CUTTING TIPS, GOUGING TIPS, RIVET CUTTING, HEATING and even WELDING TIPS
- FOR USE WITH ACETYLENE, LP or NATURAL GAS WITH OXYGEN



**SC715**

Length 17"  
Weight 3¼ lbs.

**SC729**

Length 21"  
Weight 3 lbs. 6 oz.

**SC720**

Length 21"  
Weight 3½ lbs.

CUTTING  
TORCHES

Model No.	Head Angle	Length	Shipping Weight	USE ALL THESE TIPS
SC715	75°	17"	3 lbs. 8 oz.	ACETYLENE: SC10 Series, SC12 Series, SCH Series, SC14-1, SC14-3, SC17-000, SC17-00, SC17-0, SC17-2, SC15-1, SC15-2, SC13-1, SC13-3, SC13-5, SC16-4, SC56-00 to SC56-6, SC80-3, SC81-3, SC110, SCW103 thru SCW109. LP and NATURAL GAS: SC46 Series, SC50A Series, SC22 Series, SC23 Series, SC24 Series, SC112.
SC719	90°	17"	3 lbs. 8 oz.	
SC720	180°	21"	4 lbs. 1 oz.	
SC725	75°	21"	3 lbs. 14 oz.	
SC729	90°	21"	3 lbs. 14 oz.	
SC730	180°	36"	4 lbs. 14 oz.	
SC735	75°	36"	4 lbs. 9 oz.	
SC739	90°	36"	4 lbs. 9 oz.	
SC745	75°	27"	4 lbs. 3 oz.	
SC749	90°	27"	4 lbs. 3 oz.	



# SMITH'S

NWSA 220

## CUTTING TORCHES (Machine)

### HIGH CAPACITY MACHINE CUTTING TORCHES (Medium Pressure)

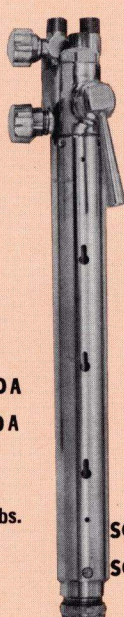
### INJECTOR STYLE MACHINE CUTTING TORCHES (Low Pressure Fuel Gas)

CUTTING  
TORCHES



SC780A  
SC790A

Length 11"  
Weight 3 1/4 lbs.



SC781A  
SC791A

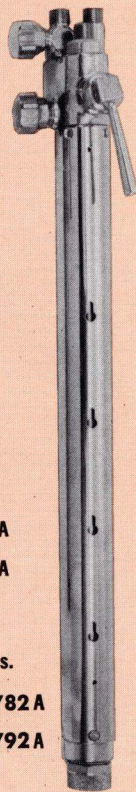
Length 15 1/2"  
Weight 3 3/4 lbs.



TWO HOSE  
ADAPTOR  
SC785

SC782A  
SC792A

Length 20"  
Weight 4 1/2 lbs.



**SMITH'S Machine Type Cutting Torches are made in two styles:**

1. HIGH CAPACITY Models for use with Medium Pressure Acetylene (cuts up to 24" steel) and Medium Pressure LP-Gas and Natural Gas (cuts up to 20" steel).
2. INJECTOR STYLE torches cut up to 10" with fuel gas pressures as low as 3 oz. per sq. in. (approx. 5" water pressure) and up to medium pressures of 1 to 25 PSI with Natural Gas, Manufactured Gas, City Gas or LP-Gases. The National Board of Fire Underwriters require the use of a flash back arrestor when any low pressure torch is operated from City or Natural Gas lines and source pressure is less than 1 PSI.

Both styles fit practically all of the popular makes of cutting machines. Handle tube diameter is 1 3/8". All torches are THREE-HOSE design. If it is desired to use these as two hose torches, use TWO HOSE ADAPTOR, SC785.

The handle is adjustable to four positions at 90° increments so torch rack can be conveniently positioned. Ease-On cutting jet eliminates tip-clogging slag blow-back in piercing operations.

#### CUTTING TIPS:

MEDIUM PRESSURE	
Acetylene	LP-Gas
SC12 Series SCH Series SC56 Series	SC21A Series SC27A Series SC50A Series SC46 Series SC18A Series

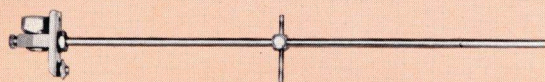
INJECTOR STYLE
Natural Gas or LP-Gases
SC31 Series
SC28 Series
SC36A Series

ORDER SEPARATELY

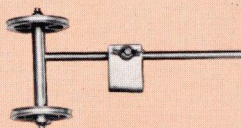
MEDIUM PRESSURE	INJECTOR STYLE Natural and LP-Gases	LENGTH	SHIPPING WEIGHT
SC780A	SC790A	11"	4 1/4 lbs.
SC781A	SC791A	15 1/2"	4 3/4 lbs.
SC782A	SC792A	20"	5 1/2 lbs.

RACKS (1/4"x1/4")		TWO HOSE ADAPTOR
32 pitch	24 pitch	
SC780-1	SC780-2	SC785
SC781-1	SC781-2	SC785
SC782-1	SC782-2	SC785

## CUTTING TORCH ACCESSORIES

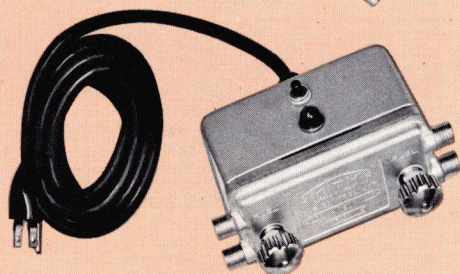
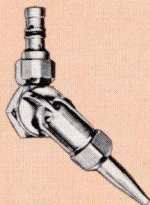


CIRCLE CUTTING GUIDE



CUTTING TORCH CARRIAGE

BEVEL  
CUTTING  
ATTACHMENT



GAS CONTROL UNIT

Cut perfect circles with your cutting torch or cutting assembly. Head nut is permanently mounted and serves to hold tip and torch in position. Guide wheel position can be changed to make cuts up to edge of plate—cuts up to 36" in diameter. Weight 2 lbs. 3 oz.

SC650A—For use with SILVER STAR cutting assemblies or hand cutting torches, TUF-TONY hand cutting torches and PC605 and PC609 cutting Assemblies.

MC650A—For use with PIPELINER cutting assemblies MC505 and MC509, and AIRLINE cutting assemblies AC305 and AC309.

LC650A—For "LC" style cutting torches and cutting assemblies.

CUTTING TORCH CARRIAGE is used to make straight line cuts. 2 1/4" dia. wheels have 5/32" flat machined groove for following small track. Weight 1 1/2 lbs.

NE134A—Fits SILVER STAR cutting torches and assemblies, PIPELINER, MC605, MC609 and PIPEWELDERS' SPECIAL cutting assemblies.

NE134—Fits "LC" Style cutting assemblies and cutting torches.

BEVEL CUTTING ATTACHMENT is especially useful on the machine cutting torches listed above.

Make bevel cuts in angles up to 90° either side of the vertical. Swivel block is calibrated in 15° increments. Bevel angle can be changed instantly without shutting off the flame. Approximate shipping weight 1 lb. 6 oz.

SC290—Use with HIGH CAPACITY Machine Cutting Torches, SC780A, SC781A, SC782A.

SC2901—Use with INJECTOR STYLE Machine Cutting Torches, SC790A, SC791A, SC792A.

H1050 GAS CONTROL UNIT. Solenoid operated unit permits instant change from high to low flame settings at the touch of a button. Ideal for flame cutting with HIGH CAPACITY Machine Cutting Torches, SC780A, SC781A, and SC782A. Makes possible high, forced preheat flames for fast starts, yet provides, at the touch of a button, low preheat flames for maintaining the cut.

SAVES: Oxygen—1/2 cylinder out of every 5 you use.

FUEL GAS—1 1/2 cylinders out of every 5 you use.

LABOR—8 minutes out of every 5 man hours.

(Figures based on typical cutting operation.)

Produces excellent results and gas savings for any job—brazing, soldering or fusion welding—where heavy initial preheat is required or where frequent but intermittent use of the flame is needed.

H1051 Hand Operated Remote Control. Comes complete with 8 ft. heavy duty cord.

H1052 Foot Operated Remote Control. Comes complete with 8 ft. heavy duty cord.



## SLIP-IN STYLE

Provides superior and economical cutting with all types of fuel gases. Swaged from highest quality cutting tip copper for greater heat reflectivity and longer tip life. Smith's cutting tips are covered by patents #267 2187 and #270 2079.

WIDE SELECTION of tips. Over 130 tips from which to select. TIPS FOR:

General Hand and Machine Cutting  
High Speed Machine Cutting  
Heavy Cutting (Up to 24")  
Metal Washing  
Gouging  
Heating  
Rivet Cutting

Plate Cutting  
Flue Cutting  
Rivet Washing  
Rivet Blowing  
Riser Cutting  
Extra-long Cutting Tips  
Bevel Cutting

Low Pressure Natural Gas  
Medium Pressure Natural Gas  
Propane  
Acetylene  
City Gas  
Manufactured Gas  
\*MAPP® Gas (See Page 24)

CHANGE TIPS IN SECONDS. No wrench needed. Just SLIP the cutting tip into the torch head and HAND tighten. Change tips so quickly and easily you can always work with the right size.

TIP MIX. Fuel gas and oxygen mix in the tip (except in injector styles). AUTOMATICALLY! With this design, torches and tips can absorb excessive amounts of reflected heat or molten metal blow-back without flashback.

PROTECTED SEATS. Seats are recessed. Protected from damage even when dropped on hard surfaces. If seats do become worn they can be replaced for a few cents each! Users report this one feature alone saves up to 50% of their replacement costs.

CUTTING  
TIPS

## "SC" ACETYLENE CUTTING TIPS (Medium Pressure)

**SC10 Series.** 4 preheats. For general hand cutting. Used with medium pressure acetylene and oxygen.

**USE IN: Cutting Assemblies**—SILVER STAR  
PIPEWELDERS' SPECIAL  
PIPELINER, MC409

**Cutting Torches** —SILVER STAR  
TUF TONY

Tip Number	Cutting Range
SC10-0	1/4"-3/8"
SC10-1	1/2"-5/8"
SC10-2	3/4"-1 1/4"
SC10-3	1 1/2"-2"
SC10-4	2 1/2"-4"



**SC 10 Series**  
Av. Weight—4 1/2 oz.



**SC12 Series.** 6 preheats. For general hand and machine cutting. Sizes 5, 6 and 7 have 8 preheats.

**USE IN: Cutting Assemblies**—Maximum Size Tip, SC12-5  
SILVER STAR  
PIPEWELDERS' SPECIAL  
PIPELINER, MC409

**Cutting Torches** —SILVER STAR  
TUF TONY

**Machine Cutting Torches, High Capacity**  
**Models:** SC780A, SC781A & SC782A (all sizes)

SC12-000	1/8"
SC12-00	3/16"
SC12-0	1/4"-3/8"
SC12-1	1/2"-5/8"
SC12-2	3/4"-1 1/4"
SC12-3	1 1/2"-2"
SC12-4	2 1/2"-4"



**SC 12 Series**  
Av. Weight—4 1/2 oz.



**SC12 EXTRA-LONG Cutting Tips.** 6 preheats. Use with medium pressure acetylene and oxygen. For getting into places that can't be reached with standard length tip. Can be bent to 90° angle provided bend is not closer than 1 1/2" from flame end. Available in 4 lengths—6", 9", 12" and 18". In ordering, specify tip size, length.

SC12-1	1/2"-5/8"
SC12-2	3/4"-1 1/4"
SC12-3	1 1/2"-2"
SC12-4	2 1/2"-4"



**Extra-Long Tips**



**SC56 Series.** Cutting tips for use with \*MAPP® Gas or acetylene with oxygen.

**"SCH" Series.** For heavy cutting up to 24". Can be used with \*MAPP® Gas or acetylene with oxygen.

**USE IN: Cutting Torches**—SILVER STAR (Max. size, SC56-5)  
TUF TONY (all sizes)

**Machine Torches**—High Capacity Models:  
SC780A, SC781A & SC782A (all sizes)

SC56-00	3/16"
SC56-0	1/4"-3/8"
SC56-1	1/2"-5/8"
SC56-2	3/4"-1 1/4"
SC56-3	1 1/2"-2"
SC56-4	2 1/2"-4"
SC56-5	5"-8"
SC56-6	9"-12"
SCH-7	13"-14"
SCH-8	15"-18"
SCH-9	19"-24"



**SC56 and "SCH" Series.**  
Av. Weight 4 3/4 oz.

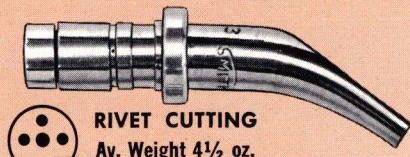


\*MAPP® is a registered trademark of the Dow Chemical Company

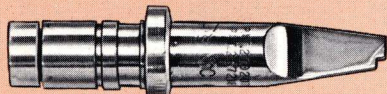


## SC SPECIAL PURPOSE TIPS

### ACETYLENE



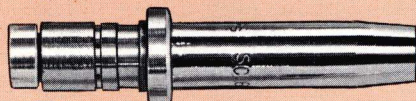
**RIVET CUTTING**  
Av. Weight 4½ oz.



SC14-1  
SC14-3



**PLATE CUTTING TIPS**  
Av. Weight 4¼ oz.



TIP  
NUMBER

CUTTING  
RANGE

SC17-000  
SC17-00  
SC17-0  
SC17-2

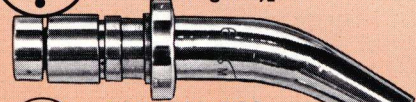
1/8"  
3/16"-1/4"  
3/8"  
3/4"-1 1/4"

#### PLATE CUTTING TIPS

"Drag" type step tips cut from 20 gauge to 1¼" plate with economy. Use with medium pressure acetylene and oxygen.



**RIVET BLOWING  
AND METAL WASHING**  
Av. Weight 4½ oz.



SC15-1  
SC15-2

#### RIVET BLOWING AND METAL WASHING

Remove lots of metal fast. Heavy preheat. Use only SC15-1 in cutting Assemblies. SC15-2 is primarily a rivet blowing tip but can be used for metal washing, gouging or veeing and groove cutting. Use with medium pressure acetylene and oxygen.



**GOUGING TIPS**  
Av. Weight 4¾ oz.



SC13-1  
SC13-3  
SC13-5

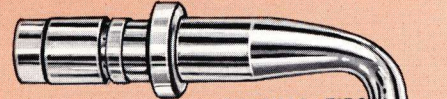
#### GOUGING TIPS

For removing old welds or cracks, for veeing or groove cutting. Heavy preheat 30° angle. For cutting assemblies use only SC13-1 and SC13-3. Use with medium pressure acetylene and oxygen.

CUTTING  
TIPS



**RISER CUTTING TIP**  
Av. Weight 5 oz.



SC16-4

#### RISER CUTTING TIP

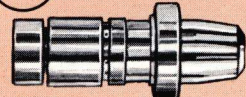
(Not recommended for use in cutting assemblies)

Extra heavy duty tip for removing gates and risers from steel castings. Heavy preheat. Use with medium pressure acetylene and oxygen.

#### BENT FLUE CUTTING TIPS



(90° Bend)  
Av. Weight 4½ oz.



TIP  
NUMBER

CUTTING  
RANGE

SC80-3

Up to 2"

SC81-3

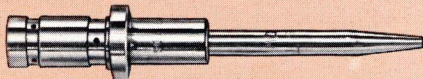
Up to 2"

#### BENT FLUE CUTTING TIPS (90° Bend)

Use one of these tips with a 180° head torch to get in tight areas. Use with medium pressure acetylene and oxygen.



**FLUE CUTTING TIPS (Stubby)**  
Av. Weight 2½ oz.



SCW103  
SCW105  
SCW107  
SCW109

WELDING  
RANGE

3/32"  
1/8"  
3/16"  
3/8"

#### FLUE CUTTING TIPS (Stubby)

Use in 75° or 90° head torches when cutting in areas where clearance is minimum. Use with medium pressure acetylene and oxygen.



**WELDING TIPS**  
Av. Weight 4½ oz.

#### WELDING TIPS

Use in hand cutting torches. A unique SMITH's feature. For SMITH's users whose primary work is cutting but want to do an occasional welding job. Use with medium pressure acetylene and oxygen.

#### HEATING TIP

TIP  
NUMBER

SC110

#### HEATING TIPS (Medium Pressure)

ACETYLENE tip gives lots of heat fast. Use in cutting assemblies or cutting torches. Has 12 drill size #60 ports. Use with acetylene and oxygen.



Actual  
Size



Av. Weight 4½ oz.



# "SC" LP-GAS CUTTING TIPS (MEDIUM PRESSURE)



NWSA 220

## SC21A SERIES FOR HIGH SPEED MACHINE CUTTING

Approximately 20% faster than conventional tips. 2 piece tip. Use with LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Machine Cutting Torches: SC780, SC781, SC782; Machine Cutting Torches: (not illustrated in catalog) SC292, SC293, SC392, SC393, SC493, SC592, SC593.

TIP  
NUMBER

SC21A-1  
SC21A-2  
SC21A-3  
SC21A-4  
SC21A-5  
SC21A-6

CUTTING  
RANGE

1/4"-3/8"  
1/2"-1"  
1 1/4"-1 1/2"  
2"-2 1/2"  
3"-4"  
5"-6"



SC21A SERIES  
Avg. Weight 4 1/4 oz.

## SC46 SERIES FOR CUTTING GREASY, DIRTY OR PAINTED METAL

1 piece tip. Designed specifically to withstand the abuse encountered when cutting OIL or GREASE covered metal. Use with LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Cutting Assemblies: SILVER STAR, PIPEWELDERS' SPECIAL; Cutting Torches: SILVER STAR (med. pressure), TUF TONY.

SC46-1  
SC46-2  
SC46-3  
SC46-4

5/8"-3/4"  
1"-1 1/2"  
2"-3"  
4"-5"



SC46 SERIES  
Avg. Weight 4 1/2 oz.

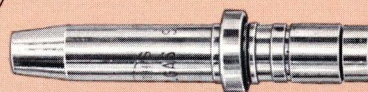
## SC50A SERIES FOR GENERAL AND HEAVY CUTTING

2 piece tip will cut up to 20" thick metal in one pass using largest size tip. Heavy preheat in tip size 1-9. Sizes 0 and 00 are excellent for general hand or machine cutting. Use with LP-Gases (propane, butane, etc.) and medium pressure Natural Gas with oxygen.

USE IN: Cutting Assemblies: SILVER STAR, PIPEWELDERS' SPECIAL (max. tip size SC50A-4), Cutting Torches: SILVER STAR (max. tip size SC50A-5), TUF TONY (all sizes).

SC50A-00  
SC50A-0  
SC50A-1  
SC50A-2  
SC50A-3  
SC50A-4  
SC50A-5  
SC50A-6  
SC50A-7  
SC50A-8  
SC50A-9

1/8"-3/16"  
1/4"-3/8"  
1/2"-3/4"  
1"-1 1/2"  
2"-3"  
4"-5"  
6"-8"  
10"-12"  
14"  
16"-18"  
20"



SC50A SERIES  
Avg. Weight 4 oz.

## "SC" LP-GAS SPECIAL PURPOSE TIPS

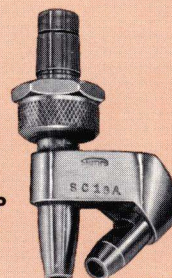
### SC18A LP-GAS (Medium Pressure) MACHINE BEVEL CUTTING

Bevel cutting tip assembly. For left hand travel. Will cut high quality 45° bevels. For beveling cutting use 1 tip size larger than would be used for cutting material at 90°. Use with (must order separately) SC50A-1B thru SC50A-4B brass mixing sections as follows:

Brass Mixing Section No.	Use In	Cutting Range 45° Bevel
SC50A-1B	SC18A	1/4"-3/8"
SC50A-2B	SC18A	1/2"-9/8"
SC50A-3B	SC18A	3/4"-1 1/4"
SC50A-4B	SC18A	1 1/2"-2 1/2"

Preheat tip end, part number 1324, comes with SC18A bevel cutting tip assembly, but may be ordered separately as a replacement part.

SC18A



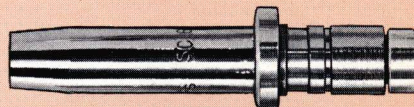
SC18A LP-GAS  
BEVEL CUTTING TIP  
Weight 7 1/4 oz.

#1324  
TIP END

### RIVET WASHING AND METAL BLOWING TIPS

Removes metal quickly. Use for blowing rivets, gouging, grooving, "J" grooving and metal washing. Propane pressure 12 PSI either tip. Use 45 PSI oxygen for SC22-1 and 65 PSI oxygen for SC22-2.

SC22-1  
SC22-2

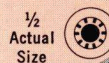


RIVET WASHING AND  
METAL BLOWING

### GOUGING TIPS

For removing old welds or cracks, for veeing or groove cutting. Heavy preheat. Fuel Gas pressure 6-10 P.S.I. Oxygen pressure 20-30 P.S.I.

SC23-1  
SC23-3  
SC23-5

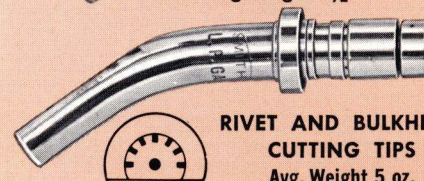


GOUGING TIPS  
Avg. Weight 5 1/2 oz.

### RIVET AND BULKHEAD CUTTING TIPS

For cutting rivet heads and bolts. Has stainless steel "shoe" for long useful life. Fuel Gas pressure 6-10 P.S.I. Oxygen pressure 35-50 P.S.I.

SC24-1  
SC24-3

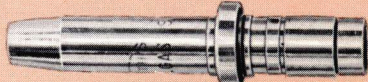


RIVET AND BULKHEAD  
CUTTING TIPS  
Avg. Weight 5 oz.

### HEATING TIP (Medium Pressure)

Use SC112 tip in Silver Star cutting assemblies and cutting torches. Fuel Gas Pressure 22-25 PSI. Oxygen Pressure 52-60 PSI.

SC112

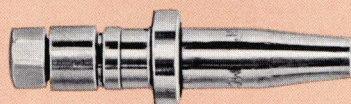


SC112 HEATING TIP

CUTTING  
TIPS



## "MC" CUTTING TIPS



**MC12 SERIES**  
Avg. Weight 2 1/4 oz.



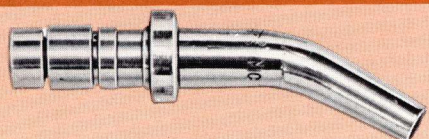
TIP NUMBER	CUTTING RANGE
MC12-000	1/8"
MC12-00	3/16"
MC12-0	1/4"
MC12-1	3/8"-1/2"
MC12-2	5/8"-3/4"
MC12-3	1"-1 1/2"
MC12-4	2"-3"

### MC12 SERIES

Slip-in cutting tips for general medium duty hand cutting. Use with medium pressure acetylene and oxygen. 6 preheats.

USE IN: Cutting Assemblies: PIPELINER  
AIRLINE (Maximum tip MC2-6)

## "MC" SPECIAL PURPOSE TIPS



**GOUGING TIPS**  
Weight 3 oz.

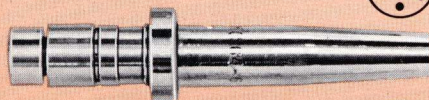


MC13-3

### GOUGING TIP

For removing old welds or defects in steel. Heavy preheat. Use with medium pressure acetylene and oxygen.

USE IN: Cutting Assemblies: PIPELINER, AIRLINE.



**RIVET BLOWING AND METAL WASHING**  
Weight 3 oz.



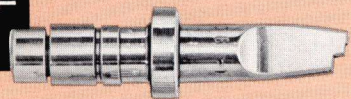
MC15-3

### RIVET BLOWING AND METAL WASHING

"Metaleater" tip for rivet blowing and metal washing. Heavy preheat. Use with medium pressure acetylene and oxygen.

USE IN: Cutting Assemblies: PIPELINER, AIRLINE.

CUTTING TIPS



**PLATE CUTTING**  
Avg. Weight 2 1/2 oz.



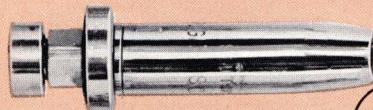
TIP NUMBER	CUTTING RANGE
MC17-000	1/8"
MC17-00	3/16"-1/4"
MC17-0	3/8"
MC17-2	3/4"-1 1/4"

### PLATE CUTTING

"Drag" type step tip for applications requiring a cut with minimum burn over and plate warpage such as car body work or other sheet metal applications. Use with medium pressure acetylene and oxygen.

USE IN: Cutting Assemblies: PIPELINER, AIRLINE.

## INJECTOR CUTTING TIPS



**SC28 SERIES**  
Avg. Weight 3 1/4 oz.

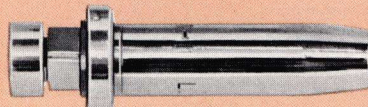


TIP NUMBER	CUTTING RANGE
SC28-1	1/2"-5/8"
SC28-2	3/4"-1 1/2"
SC28-3	1 1/2"-2 1/2"
SC28-4	3"-4"

### SC28 FAST PREHEAT SERIES

For hand cutting of dirty, scaly metal and fast starting cuts. 2 piece tip. Use with LOW PRESSURE Natural Gas, Manufactured Gas, City Gas, LP-Gases (butane, propane, etc.) and medium pressure Natural Gas.

USE IN: Hand Cutting Torches: SILVER STAR (Injector); Cutting Assemblies: SILVER STAR (Injector).



**SC31 SERIES**  
Avg. Weight 3 1/4 oz.



TIP NUMBER	CUTTING RANGE
SC31-00	1/8"-3/16"
SC31-0	1/4"-3/8"
SC31-1	1/2"-5/8"
SC31-2	3/4"-1 1/4"
SC31-3	1 1/2"-2 1/2"
SC31-4	3"-4"
SC31-5	5"-8"
SC31-6	10"

### SC31 GENERAL HAND AND MACHINE CUTTING TIPS

Also ideal for BEVEL cutting. 2 piece tip. Use with LOW PRESSURE Natural Gas, Manufactured Gas, City Gas, LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Hand Cutting Torches: SILVER STAR (Injector) all sizes; Machine Cutting Torches: (Injector) all sizes; Cutting Assemblies: SILVER STAR (Injector). Maximum capacity 6".



# INJECTOR SPECIAL PURPOSE TIPS



NWSA 220

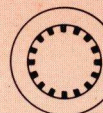
## HEATING TIP

SC111 Heating tip. For use with LOW PRESSURE Natural Gas, Manufactured Gas, City Gas, LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Cutting Assemblies: SILVER STAR (INJECTOR Style); Cutting Torches: SILVER STAR (INJECTOR Style).

TIP  
NUMBER

SC111



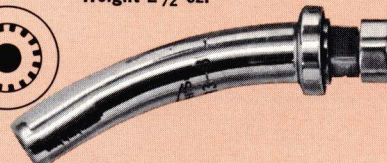
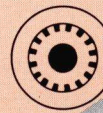
HEATING TIP  
Weight 2 1/2 oz.

## BENT GOUGING TIPS

For removing old welds or defects, for welding or groove cutting. Heavy preheat. 30° angle. For cutting assemblies use SC33-3. Use with low Pressure Natural Gas, Manufactured Gas, City Gas, LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Cutting Assemblies: SILVER STAR (INJECTOR Style); Cutting Torches: SILVER STAR (INJECTOR Style).

SC33-3  
SC33-5



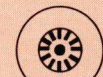
BENT GOUGING TIPS  
Avg. Weight 3 3/4 oz.

## RIVET CUTTING TIPS

For cutting heads of rivets and bolts. Can also be used with 180° head cutting torches to cut out boiler tubes. Use with Low Pressure Natural Gas, Manufactured Gas, City Gas, LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Cutting Assemblies: SILVER STAR (INJECTOR Style); Cutting Torches: SILVER STAR (INJECTOR Style).

SC34-1  
SC34-3



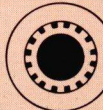
RIVET CUTTING TIPS  
Avg. Weight 2 3/4 oz.

## RIVET BLOWING AND METAL WASHING TIPS

Removes lots of metal fast. Heavy preheat. Use only SC35-1 in cutting assemblies. SC35-2 is primarily a rivet blowing tip but can be used for metal washing, gouging or veeing and groove cutting. Use with Low Pressure Natural Gas, Manufactured Gas, City Gas, LP-Gases (propane, butane, etc.) and medium pressure Natural Gas.

USE IN: Cutting Assemblies: SILVER STAR (INJECTOR Style); Cutting Torches: SILVER STAR (INJECTOR Style).

SC35-1  
SC35-2



RIVET BLOWING AND  
METAL WASHING TIPS  
Avg. Weight 2 1/2 oz.

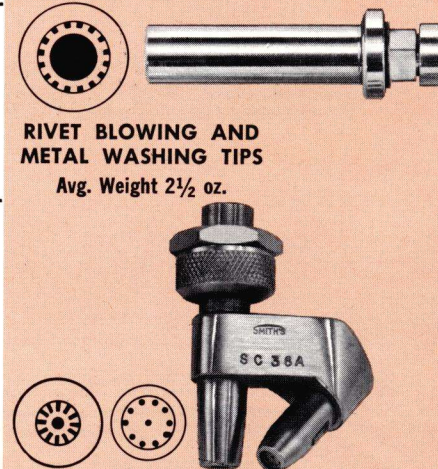
## BEVEL CUTTING TIP ASSEMBLY FOR MACHINE CUTTING

SC36A injector bevel cutting tip assembly. For left hand travel. Will cut high quality 45° bevels. For bevel cutting use 1 tip size larger than would be used for cutting material at 90°. Can also make double bevels by changing angle of the torch and making a second pass. Use with (must order separately) SC31-1 thru SC31-4 brass mixing sections. Order brass mixing sections as follows:

SC36A

Brass Mixing Section No.	Use In	Cutting Range 45° Bevel
SC31-1B	SC36A	1/4"-3/8"
SC31-2B	SC36A	1/2"-5/8"
SC31-3B	SC36A	3/4"-1 1/4"
SC31-4B	SC36A	1 1/2"-2 1/2"

USE IN: Injector Machine Cutting Torches.



BEVEL CUTTING TIP ASSEMBLY  
Weight 7 1/4 oz.

CUTTING  
TIPS

## "LC" CUTTING TIPS (Screw-in Style)

### LC-4 SERIES ACETYLENE CUTTING TIPS

4 Preheats. For general cutting of steel. Light preheat. Use with Medium pressure acetylene and oxygen.

USE IN: Cutting Assemblies: "LC" Style; Cutting Torches: "LC" Style.

CUTTING  
RANGE

TIP  
NUMBER

1/8"-3/8"  
1/2"-5/8"  
3/4"-1 1/4"  
1 1/2"-2"  
3"-4"

LC0-4  
LC1-4  
LC2-4  
LC3-4  
LC4-4



LC-4 SERIES  
Avg. Weight 3 3/4 oz.

### LC-6 SERIES ACETYLENE CUTTING TIPS

6 Preheats. For general cutting of steel at high speeds. Ideal for dirty or rusty material. Use only up to the LC4-6 in cutting assemblies. Heavy preheat. Use with medium pressure acetylene and oxygen.

USE IN: Cutting Assemblies: "LC" Style; Cutting Torches: "LC" Style.

1/8"-3/8"  
1/2"-5/8"  
3/4"-2"  
3"-4"  
5"-8"  
9"-12"  
12"-14"

LC0-6  
LC1-6  
LC2-6  
LC3-6  
LC4-6  
LC5-6  
LC6-6



LC-6 SERIES  
Avg. Weight 3 5/8 oz.

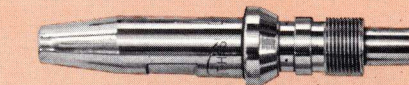
### LC46 SERIES LP-GAS CUTTING TIPS

1 PIECE TIP. Use for General Hand Cutting with Medium Pressure LP-Gases (Propane, Butane, etc.) and Oxygen.

USE IN: "LC" Style Cutting Assemblies and Torches.

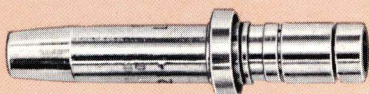
5/8"-3/4"  
1"-1 1/2"  
2"-3"  
4"-5"  
6"-8"  
10"-12"

LC46-1  
LC46-2  
LC46-3  
LC46-4  
LC46-5  
LC46-6



LC46 SERIES  
Avg. Wt. 4 1/2 oz.





**SC21A-M Series**  
Avg. Weight 4 1/4 oz.

**Tip No.**

SC21A-1M  
SC21A-2M  
SC21A-3M  
SC21A-4M  
SC21A-5M  
SC21A-6M

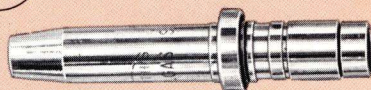
**Cutting Range**

1/4"-3/8"  
1/2"-1"  
1 1/4"-1 1/2"  
2"-2 1/2"  
3"-4"  
5"-6"

**SC21A-M HIGH SPEED MACHINE CUTTING TIPS**

Approximately 20% faster than conventional MAPP® cutting tips. Use with MAPP® gas and oxygen. Cutting oxygen, fuel gas pressures and speed identical to SC21A series tips.

USE IN: Machine Cutting Torches; SC780A, SC781A, SC782A



**SC50A-M Series**  
Avg. Weight 4 oz.

SC50A-00M  
SC50A-0M  
SC50A-1M  
SC50A-2M  
SC50A-3M  
SC50A-4M  
SC50A-5M  
SC50A-6M  
SC50A-7M  
SC50A-8M  
SC50A-9M

1/8"-3/16"  
1/4"-3/8"  
1/2"-3/4"  
1"-1 1/2"  
2"-3"  
4"-5"  
6"-8"  
10"-12"  
14"  
16"-18"  
20"

**SC50A-M SERIES FOR HAND AND MACHINE CUTTING**

Two Piece Tip. Will cut up to 20" thick steel in one pass with largest size tip. Use with MAPP® gas and oxygen. Use same fuel gas and oxygen pressures as SC50A series.

USE IN: Cutting Assemblies; Silver Star, Pipewelders' Special (Max. size SC50A-5M); Hand Cutting Torches; Silver Star (max. SC50A-6M) and Tuf Tony (all sizes); Machine Cutting Torches; SC780A, SC781A, and SC782A.



**SC56 SERIES**  
Avg. Weight 4 1/2 oz.

SC56-00  
SC56-0  
SC56-1  
SC56-2  
SC56-3  
SC56-4  
SC56-5  
SC56-6  
SCH-7  
SCH-8  
SCH-9

3/16"  
1/4"-3/8"  
1/2"-5/8"  
3/4"-1 1/4"  
1 1/2"-2"  
2 1/2"-4"  
5"-8"  
9"-12"  
13"-14"  
15"-18"  
19"-24"

**SC56 SERIES FOR GENERAL HAND CUTTING**

ONE PIECE TIP. Lasts longer under rough cutting conditions. "SCH" series tips can be used for cutting 13" to 24" thick steel. Use with MAPP® gas and oxygen.

USE IN: Cutting Assemblies; Silver Star and Pipewelders' Special (max. size SC56-5) and MC409 (max. size SC56-4) Hand Cutting Torches; Silver Star (max. SC56-6) and Tuf Tony (all sizes).

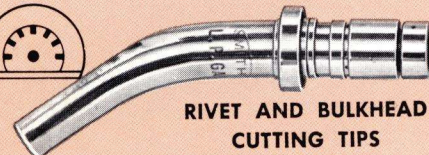
CUTTING TIPS

## "SC" MAPP® SPECIAL PURPOSE TIPS

Use in Silver Star cutting torches and assemblies, Tuf-Tony cutting torches and Pipewelders' Special cutting assemblies



**GOUGING TIPS**  
Avg. Weight 5 1/2 oz.



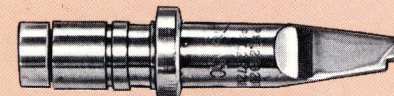
**RIVET AND BULKHEAD CUTTING TIPS**  
Avg. Weight 5 oz.



**METAL WASHING AND RIVET BLOWING TIPS**  
Avg. Weight 5 oz.



**SC112 HEATING TIP**



**PLATE CUTTING TIPS**  
Av. Weight 4 1/4 oz.

**Tip No.**

SC23-1M  
SC23-3M  
SC23-5M

**GOUGING TIPS**

For removing old welds or cracks, for veeing or groove cutting. Heavy preheat. Fuel Gas pressure 6-10 PSI. Oxygen pressure 20-30 PSI.

SC24-1M  
SC24-3M

**RIVET AND BULKHEAD CUTTING TIPS**

For cutting rivet heads and bolts. Has stainless steel "shoe" for long useful life. Fuel Gas pressure 6-10 PSI. Oxygen pressure 35-50 PSI.

SC22-1M  
SC22-2M

**METAL WASHING AND RIVET BLOWING TIPS**

Removes metal quickly. Use for blowing rivets, gouging, grooving, "J" grooving and metal washing. Fuel Gas pressure 12 PSI either tip. Use 45 PSI oxygen for SC22-1M and 65 PSI oxygen for SC22-2M.

SC11-2M

**HEATING TIP**

Gives lots of heat fast. Use in cutting assemblies or cutting torches. Fuel Gas pressure 22-25 PSI. Oxygen pressure 52-60 PSI.

SC17-0M

**PLATE CUTTING TIP**

"Drag" type step tip cuts up to 1/8" steel with economy. Cuts down warpage and edge burnover on thin metal sheets.



# CUTTING TIPS

## SCREW-IN STYLE

### ("MC" SERIES)

# "O" RINGS

## and SEATS



NWSA 220

For OLD STYLE Airline and Midline Cutting Assemblies MC-4 SERIES. Standard 4 hole preheat series cutting tips for general cutting of steel. Use with medium pressure acetylene and oxygen.

USE IN: Cutting Assemblies: Airline AC208, AC209; Midline, MC208, MC209.

CUTTING RANGE  
3/16"-3/8"  
1/8"-5/8"  
1/4"-3/4"

TIP NUMBER  
MC1-4  
MC2-4  
MC3-4

### RIVET CUTTING TIPS

Have flat milled tip end for cutting off rivet heads flush with plate. Use with medium pressure acetylene and oxygen.

MC51-2 Mixing section only for both tips

LC51-1 Tip end and nut for MC51-0

LC52-1 Tip end and nut for MC 52-0

USE IN: Cutting Assemblies: Airline AC208, AC209; Midline, MC208, MC209.

MC51-0  
MC52-0

### SHEET METAL CUTTING TIPS

Step type "drag" tips for cutting up to 1/8" sheets. Use with medium pressure acetylene and oxygen.

MC51-2 Mixing section for both tips.

LC61-1 Tip end and nut for MC61-0

LC62-1 Tip end and nut for MC62-0

USE IN: Cutting Assemblies: Airline AC208, AC209; Midline, MC208, MC209.

MC61-0  
MC62-0

### MC-4 SERIES



Av. Weight 2 oz.



Av. Weight 4 oz.



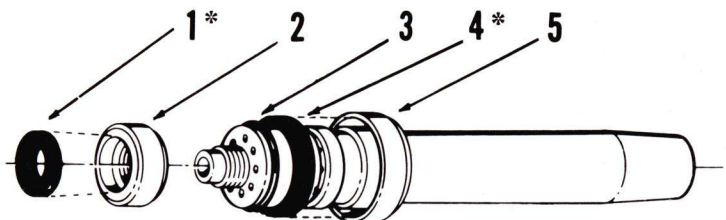
Av. Weight 3 1/2 oz.



# "O" RINGS AND SEATS

## ONE PIECE CUTTING TIPS (for Acetylene and Oxygen)

Note: High and low pressure seats should be replaced in matched pairs. Set G930 contains matched high and low pressure seats for all "SC" cutting tips; set G691 contains a matched set of seats for all "MC" slip-in cutting tips.

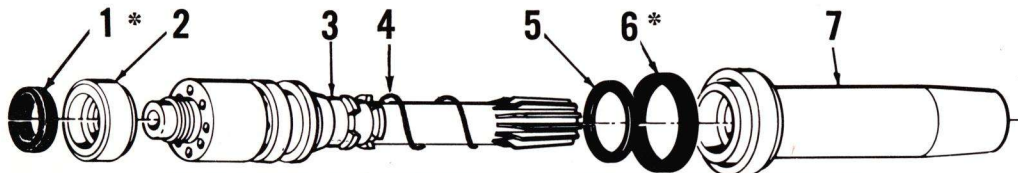


CODE	DESCRIPTION	SC10 Series	SC12 Series	SCH Series	MC-12 Series
1	High Press. Seat	G930*	G930*	G930*	G691*
2	High Press. Collar	G933	G933	G933	G692
3	"O" Ring	NONE	NONE	Size 1-4, None	NONE
				Size 5-9, G941-15	
4	Low Pressure Seat	G930*	G930*	G930*	G691*
5	Low Press. Collar	G934	G934	G934	G693

SC Series SPECIAL PURPOSE CUTTING TIPS—Same as SC10 and SC-12 Series.

MC Series SPECIAL PURPOSE CUTTING TIPS—Same as MC12 Series.

## TWO PIECE CUTTING TIPS (LP-Gases and other fuel gases with oxygen)



CODE	DESCRIPTION	SC21A Series, SC27A Series, SC28 Series, SC31 Series, SC50A Series
1	High Press. Seat	G930*
2	High Press. Collar	G933
3	Brass Mixing Section (1)	Add "B" to tip number. EXAMPLE: To get brass mixing Section for SC21A-1 tip—ORDER SC21A-1B.
4	S.S. Wire Spiral	Part No. 1697A. Used on all SC21A, SC27A and SC50A tips except SC50A-8 and -9.
5	Gasket	G1100-4
6	Low Press. Seat	G930*
7	Copper Shell (2)	Add "C" to tip number. EXAMPLE: To get copper shell for SC21A-1 tip—ORDER SC21A-1C.

(1) Brass Mixing Section includes items 1, 2, 3 and 4.

(2) Copper Shell includes items 6 and 7.

CUTTING TIPS



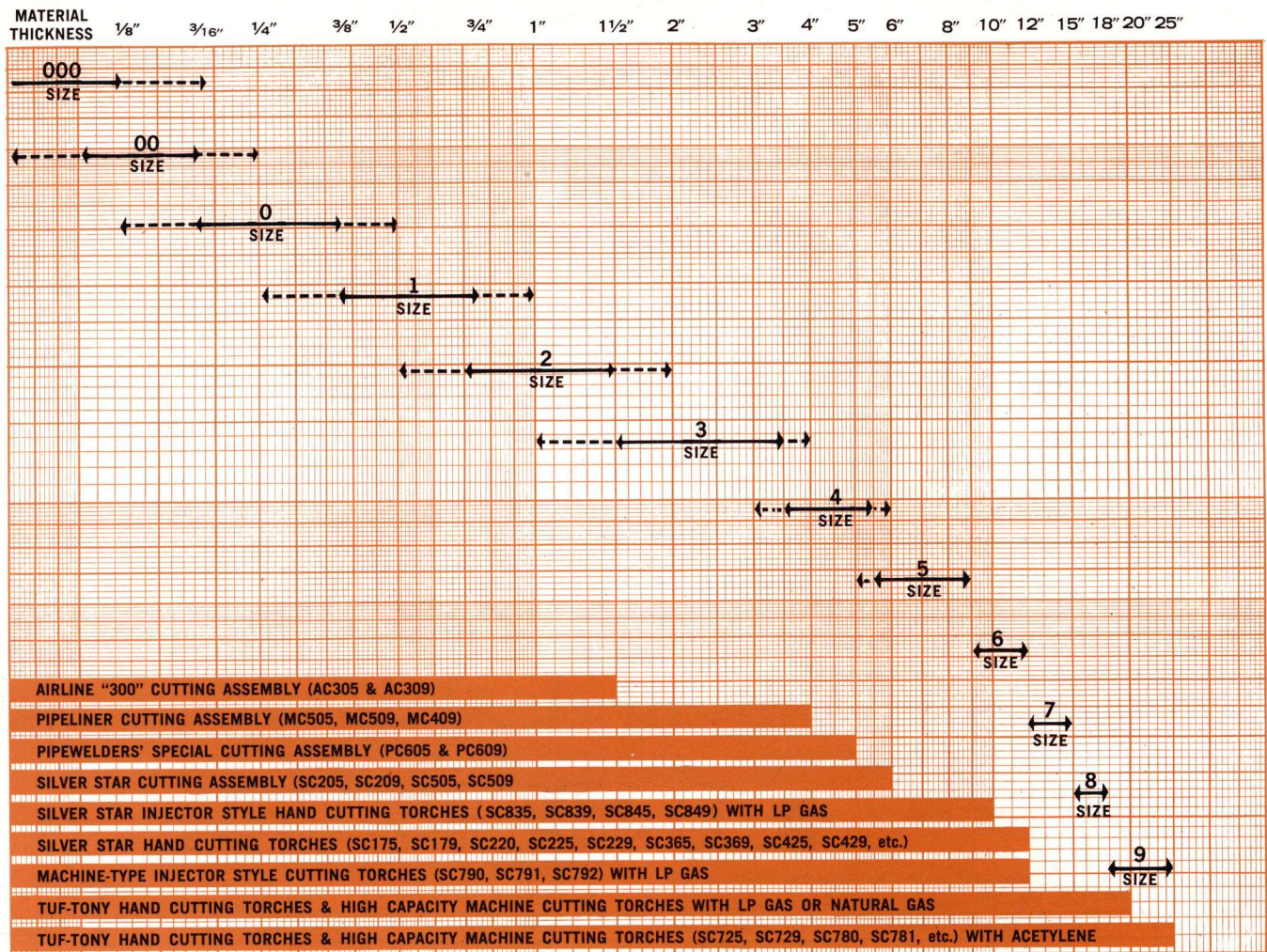


# CUTTING RANGE CHART

# DRILL CLEANERS

NWSA 220

## CUTTING RANGE CHART



NOTE—The solid black arrows indicate best performance ranges. Dotted arrows show extreme limits.

## DRILL CLEANERS FOR CUTTING TIPS

TIP SIZE		000	00	0	1	2	3	4	5	6	7	8	9
TIP NO.													
SC10	CUTT. JET	72	68	62	56	54	51	45	41				
	PRE-HEAT	75	71	70	68	65	65	60	60				
SC12	CUTT. JET	72	68	62	56	54	51	45	41	32	28		
	PRE-HEAT	75	75	74	71	70	68	62	60	60	56		
SC56 + SCH	CUTT. JET		68	62	56	54	51	45	41	32	28	17	3
	PRE-HEAT		68	68	65	60	58	56	54	54	54	54	54
MC12	CUTT. JET	72	68	62	56	54	51	45					
	PRE-HEAT	75	75	74	71	70	68	62					
MC10	CUTT. JET		68	62	56								
	PRE-HEAT		71	70	68								
SC28	CUTT. JET				56	54	51	45					
	PRE-HEAT												
SC31	CUTT. JET		68	62	56	54	51	45	41	32			
	PRE-HEAT												
SC46	CUTT. JET				56	54	51	45					
	PRE-HEAT				56	56	56	56					
SC50A	CUTT. JET		68	62	56	54	51	45	41	32	28	17	3
	PRE-HEAT												
SC21A	CUTT. JET				TC-1 TC100	TC-2 TC100	TC-3 TC100	TC-4 TC100	TC-5 TC100	TC-6 TC100	TC-7 TC100		



# SMITH'S REGULATORS

For precision control of oxygen, fuel gases and compressed air.



NWSA 230

## REGULATOR TYPES

### TWO-STAGE REGULATORS

BB-2

The industries' foremost precision regulator. Drops cylinder pressure to working pressure in two stages. Factory preset first stage automatically delivers gas to second stage at proper pressure and in correct volume for best service. Simply select the required outlet pressure and it remains constant whether tank is full or nearly empty. Used where unvarying outlet pressure and flow must be maintained.

### SINGLE-STAGE REGULATORS

BB

Trouble-free regulators—proved by nearly 40 years of service to the welding industry. Type BB regulators reduce cylinder pressure to working pressure in a single stage or step. Single stage regulators deliver gas at higher volumes than two-stage units.

### TWO-STAGE (BB-2) and SINGLE-STAGE (BB) features:

Frictionless ball bearing seat guide. Assures perfect alignment of seat and nozzle, reduces uneven seat wear.

Molded "Perma-Seet" seat resists wear and cracking.

Monel nozzles lessen "creep" and seat leakage.

Strong sensitive fabric-impregnated 4" neoprene diaphragms.

Pressure forged brass alloy bodies assure complete safety at normal welding and cutting pressures. Deep drawn, heavy gauge steel bonnets, rust-proofed inside and out—have attractive baked enamel finish.

### ECONOFLO REGULATORS

Compact, moderately priced SINGLE-STAGE regulators for all general medium-range welding, cutting and heating. Ideal for garages, body shops, maintenance shops and home workshops. These compact, lightweight regulators have quality features found only in more expensive equipment. Accurate, dependable gas regulation with ample capacity for most work—yet the price is attractively low.

### PRE-SET FUEL GAS REGULATORS

No need to adjust regulator pressure. Foolproof PRE-SET regulator automatically reduces tank pressure to outlet pressure of 12-15 PSI . . . sufficient to operate welding and cutting equipment for most jobs. Direct reading gauge shows tank contents at a glance (acetylene). Compact design is made possible by a unique bellows that acts as the diaphragm usually found in gas pressure regulators. Long wear seat is practically indestructible.

### INLET CONNECTIONS

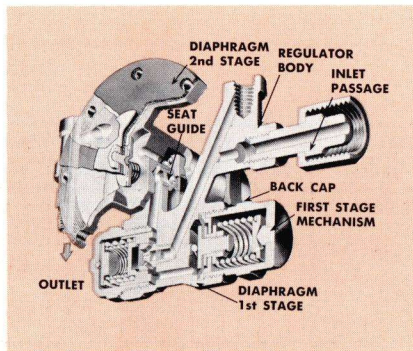
All SMITH'S cylinder regulators are equipped with CGA (Compressed Gas Association) Standard Inlet Connections. All CGA connections are equipped with sintered bronze filters (except the H825 Pre-Set regulators and Econoflo regulators which have internal filters).

### OUTLET CONNECTIONS

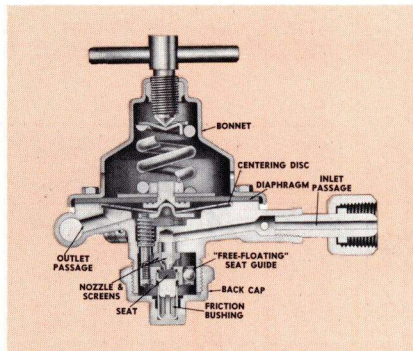
Fit International Acetylene Association (I.A.A.) size "B" connections  $\frac{9}{16}$ "-18 thread.



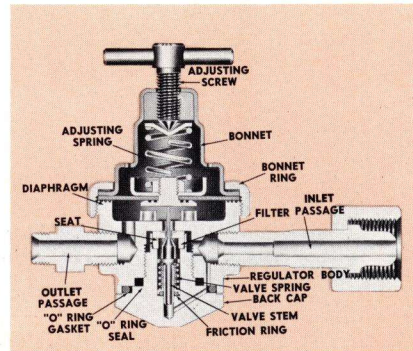
SMITH'S regulators and check valves are listed under the reexamination service of Underwriters' Laboratories, Inc.



TWO-STAGE



SINGLE-STAGE



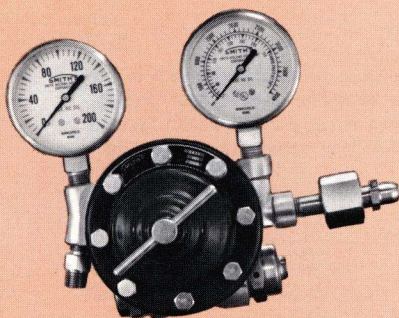
ECONOFLO

REGULATORS



## TWO STAGE REGULATORS ("BB-2")

**H313**



**Oxygen**

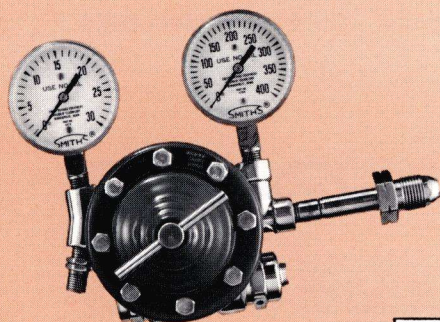
**H313** Oxygen regulator for welding and cutting.

**H313C** Oxygen regulator for welding.

**H317A** Oxygen regulator for cutting. Delivers high pressures needed for cutting operations.

Stock No.	Delivery Pressure	Gauges (2 1/2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H313	0-100 PSI	H71C (4000 PSI)	H69B (200 PSI)	CGA540	H138 ("B") 9/16"-18 R. H. Thread	7 1/2 lbs.
H313C	0-45 PSI	H71C (4000 PSI)	H68A (60 PSI)	CGA540		7 1/2 lbs.
H317A	0-290 PSI	H71C (4000 PSI)	H70D (400 PSI)	CGA540		7 3/4 lbs.

**H315P**



**Acetylene**

**H315** Acetylene regulator with CGA Alternate Standard inlet connection.

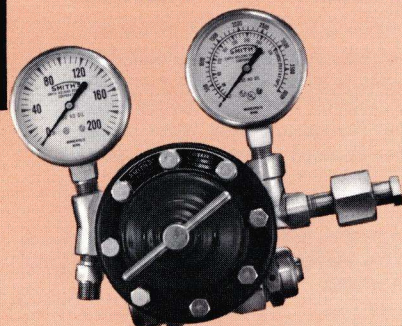
**H315P** LP-Gas and acetylene regulator with CGA Standard inlet connection.

Stock No.	Acetylene Delivery Pressure	Propane Delivery Pressure	Gauges (2 1/2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
			Inlet	Outlet			
H315	0-15 PSI		H70D (400 PSI)	H67K (30 PSI)	CGA300	H137 ("B") 9/16"-18 L. H. Thread	7 1/2 lbs.
H315P	0-15 PSI	0-25 PSI	H70D (400 PSI)	H67K (30 PSI)	CGA510		7 1/2 lbs.



on H315

**H491**

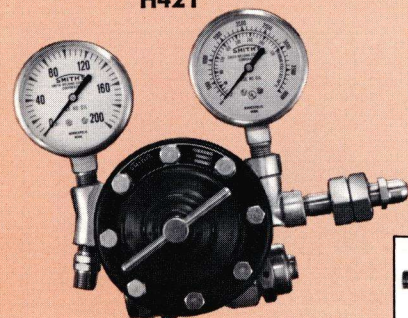


**Carbon Dioxide  
(CO<sub>2</sub>)**

**H491** For 2-stage regulation of carbon dioxide.

Stock No.	Delivery Pressure	Gauges (2 1/2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H491	0-100 PSI	H71C (4000 PSI)	H69B (200 PSI)	CGA320	H138 ("B") 9/16"-18 RH	7 1/2 lbs.

**H421**



**Other  
Gases**

**H421** For Hydrogen

**H471A** For OIL-pumped Nitrogen.

**H472** For WATER-pumped Nitrogen.

Stock No.	Delivery Pressure	Gauges (2 1/2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H421	0-145 PSI	H71C (4000 PSI)	H69B (200 PSI)	CGA350	H137 ("B") 9/16"-18 LH	7 1/2 lbs.
H471A	0-290 PSI	H71C (4000 PSI)	H70D (400 PSI)	CGA590	H138 ("B") 9/16"-18 RH	7 1/2 lbs.
H472	0-290 PSI	H71C (4000 PSI)	H70D (400 PSI)	CGA580	H138 ("B") 9/16"-18 RH	7 1/2 lbs.



on H471A



on H472



# SINGLE STAGE REGULATORS

## ("BB")



NWSA 230

H100 Oxygen regulator for Welding and Cutting.

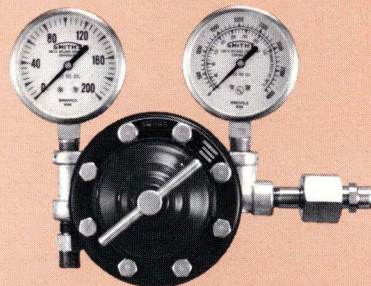
H100C Oxygen regulator for Welding.

H102E Oxygen regulator for Cutting. Delivers high pressures needed for heavy cutting operations.

Stock Number	Delivery Pressure	GAUGES (2½" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H100	0-100 PSI	H71C (4000 PSI)	H69B (200 PSI)	CGA540	H138 ("B")	5¾ lbs.
H100C	0-45 PSI	H71C (4000 PSI)	H68A (60 PSI)	CGA540	¾"-18	5¾ lbs.
H102E	0-290 PSI	H71C (4000 PSI)	H70D (400 PSI)	CGA540	R.H. Thread	6 lbs.

OXYGEN

H100

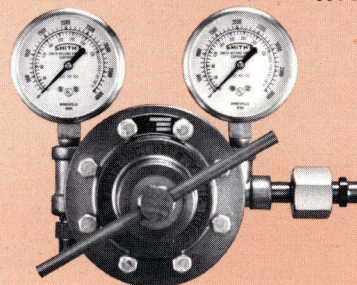


H102F MASTER REGULATOR for oxygen or air. A heavy duty, high capacity regulator designed to deliver high pressures and medium flows. Ideal for manifold systems.

Stock Number	Delivery Pressure	GAUGES (2½" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H102F	0-1000 PSI	H71C (4000 PSI)	H71C (4000 PSI)	CGA540	H138 ("B") ¾"-18 R.H. Thread	9¾ lbs.

OXYGEN or AIR

H102F



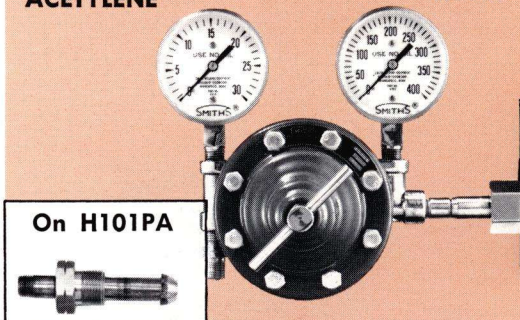
H101J Acetylene regulator with CGA Alternate Standard inlet connection.

H101PA LP-Gas and Acetylene regulator with CGA Standard inlet connection.

Stock Number	Acetylene Delivery Pressure	Propane Delivery Pressure	GAUGES (2½" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
			Inlet	Outlet			
H101J	0-15 PSI		H70D (400 PSI)	H67K (30 PSI)	CGA300	H137 ("B") ¾"-18 L.H. Thread	5¾ lbs.
H101PA	0-15 PSI	0-45 PSI	H70D (400 PSI)	H67K (30 PSI)	CGA510		5¾ lbs.

ACETYLENE

H101J



On H101PA

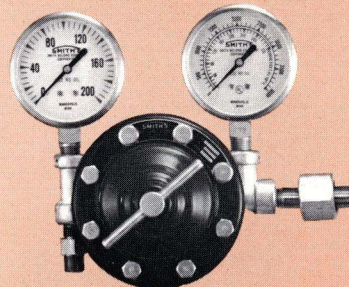
REGULATORS

H481 For single stage regulation of carbon dioxide.

Stock Number	Delivery Pressure	GAUGES (2½" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H481	0-100 PSI	H71C (4000 PSI)	H69B (200 PSI)	CGA320	H138 ("B") ¾"-18 R.H.	5¾ lbs.

CARBON DIOXIDE (CO<sub>2</sub>)

H481



H401 for Hydrogen

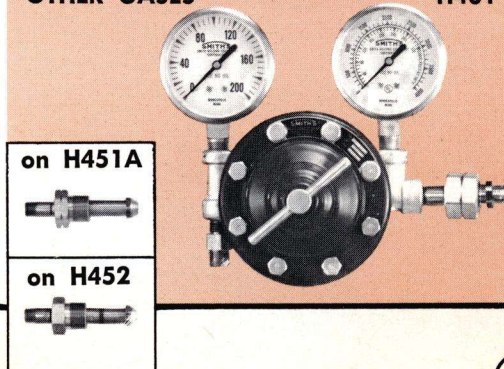
H451A for Oil Pumped Nitrogen

H452 for Water Pumped Nitrogen

Stock Number	Delivery Pressure	GAUGES (2½" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H401	0-100 PSI	H71C (4000 PSI)	H69B (200 PSI)	CGA350	H137 ("B") ¾"-18 L.H.	5¾ lbs.
H451A	0-290 PSI	H71C (4000 PSI)	H70D (400 PSI)	CGA590	H138 ("B") ¾"-18 R.H.	5¾ lbs.
H452	0-290 PSI	H71C (4000 PSI)	H70D (400 PSI)	CGA580	H138 ("B") ¾"-18 R.H.	5¾ lbs.

OTHER GASES

H401



on H451A

on H452

See FLOW CHARTS  
AT END OF REGULATOR SECTION

For additional descriptive information  
see first page of regulator section





NWSA 230

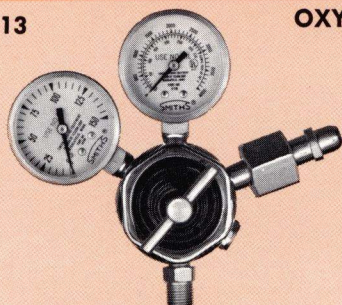
# ECONOFLO REGULATORS

Compact Single Stage Regulators for general, medium range welding,  
cutting and heating

# SAF-T-PAK REGULATORS

H713

OXYGEN

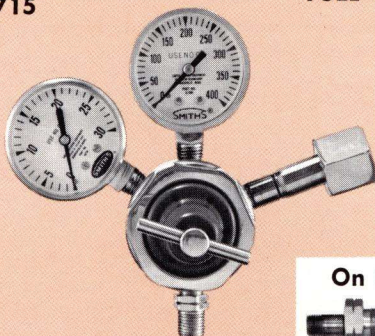


**H713** Oxygen regulator for welding, cutting and heating. Provides accurate, dependable gas regulation with ample capacity for most work—yet price is attractively low. Supplied with CGA Standard Inlet Connection for Industrial Oxygen. Delivery pressure up to 100 PSI. Outlet connection fits "B" hose connections.

Stock No.	Delivery Pressure	GAUGES (2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
		Inlet	Outlet			
H713	0-100 PSI	H71N 4000 PSI	H68N 150 PSI	CGA540	H138 ("B") 9/16"-18 R.H.	3 1/2 lbs.

H715

FUEL GAS



On H715P



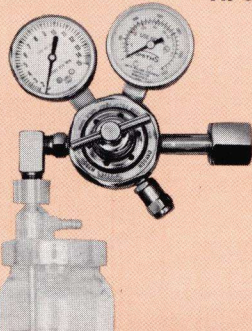
**H715** Acetylene regulator with CGA Alternate Standard inlet connection. Delivery pressure up to 15 PSI. Outlet connection will take "B" hose connections.

**H715P** LP-Gas and Acetylene regulator with CGA Standard inlet connection. Delivery pressure up to 15 PSI. Outlet connection will take "B" hose connections.

Stock No.	Acetylene Delivery Pressure	Propane Delivery Pressure	GAUGES (2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
			Inlet	Outlet			
H715	0-15 PSI		H70N 400 PSI	H67N 30 PSI	CGA300	H137 ("B") 9/16"-18 L.H.	3 1/2 lbs.
H715P	0-15 PSI	0-25 PSI			CGA510		3 1/2 lbs.

## OXYGEN THERAPY REGULATOR H730

H730



REGULATORS

#500 Humidifier

**H730** Used by hospitals, police and fire departments and industrial safety departments, for emergency administration of oxygen. Polished nickle finish. Outlet gauge reads in liters per minute.

H730 provides dependable, highly accurate delivery of oxygen within medically acceptable limits. Can be used with any bubble-type humidifier.

#500 HUMIDIFIER. Available as an accessory. Fits H730 regulator. This is a chromium plated forged brass nasal humidifier with audible pressure relief valve, porostone filter diffuser, and silk screened bottle.

**H730** INLET CONNECTION: CGA540M (Nickle Plated) Medical Oxygen.

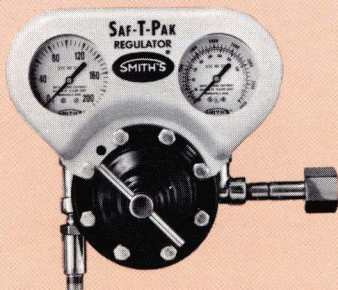
OUTLET CONNECTION: 9/16"-18 R.H. ("B")

SHIPPING WEIGHT: 3 lbs. 3 oz.

## SAF-T-PAK REGULATORS Single Stage, Heavy Duty

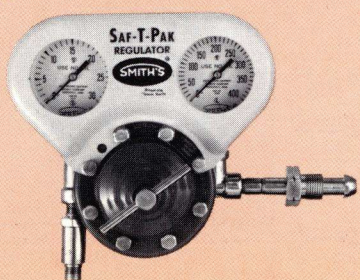
H100S

OXYGEN



H101PS

FUEL GAS



SAF-T-PAK regulators are used in safety conscious plants and shops—are specified by many PLANT SAFETY ENGINEERS for use in welding and cutting installations.

SMITH'S popular and job-proven BB Single Stage regulators equipped with:

**HARD HATS.** Eliminates fire hazard due to gas loss from broken gauge shanks. Hard Hat helps absorb the shock of swinging or falling objects . . . or when gas cylinder is tipped over.

**Safety Check Valve.** Prevents the back-flow of gas into regulator. Prevents explosive mixture of fuel gas and oxygen in regulators.

Outlet connections fit IAA size "B" connections.

Stock No.	GAS	Delivery Pressure	GAUGES (2 1/2" Dia.)		Inlet Connection	Outlet Connection	Shipping Weight
			Inlet	Outlet			
H100S	Oxygen	0-100 PSI	H71C	H69B	CGA540	9/16"-18 R.H.	6 1/2 lbs.
H102ES	Oxygen	0-290 PSI	H71C	H70D	CGA540	9/16"-18 R.H.	6 1/2 lbs.
H101JS	Fuel	0-15 PSI	H70D	H67K	CGA300	9/16"-18 L.H.	6 1/2 lbs.
H101PS	Fuel	*0-15 PSI	H70D	H67K	CGA510	9/16"-18 L.H.	6 1/2 lbs.

SEE FLOW DATA CHARTS  
AT END OF REGULATOR SECTION

For additional descriptive information, see first page of regulator section.

\*Propane delivery pressure 0-25 PSI.



# LINE REGULATORS ("BB")



NWSA 230

## FOR WELDING AND CUTTING STATIONS ON OXYGEN PIPELINES

- H501A For welding. Inlet supplied with H998-1 which fits 1/2" standard pipe fitting.  
H503 For welding. Fits Airco #801-0169; Linde V7 and V47 station valves (CGA540).  
H505 For welding. Fits Rego M690R and #7160 station valves  
H517 For cutting. Inlet supplied with H998-1 adapter for 1/2" standard pipe fitting.  
H519 For cutting. Fits Airco #801-0169; Linde V7 and V47 station valves (CGA540).  
H521 For cutting. Fits Rego M960R and #7160 station valves.

Stock No.	Delivery Pressure	Gauge (2 1/2" dia.)	Outlet Connection	Shipping Weight
H501A	0-45 PSI	H68A (60 lbs.)	H138 ("B")	5 1/4 lbs.
H503, H505	0-45 PSI	H68A (60 lbs.)	9/16"-18	5 1/4 lbs.
H517	0-150 PSI	H70D (400 lbs.)	Right Hand	5 1/4 lbs.
H519, H521	0-150 PSI	H70D (400 lbs.)	Thread	5 1/4 lbs.

## FOR WELDING OR CUTTING STATIONS ON ACETYLENE (or other fuel gas) PIPELINES.

- H541A Inlet supplied with H560 adaptor which fits 1/2" standard pipe fitting.  
H539A Inlet connection fits Airco #801-0168 station valve.  
H547A Inlet connection fits Linde V8 and V48 station valves.  
H549A Inlet connection fits Rego M961R and #7161 station valves.

Stock No.	Acetylene Delivery Pressure	Propane Delivery Pressure	Gauge (2 1/2" dia.)	Outlet Connection	Shipping Weight
H541A	0-15 PSI	0-25 PSI	H67K (30 lbs.)	H137 ("B")	5 1/4 lbs.
H539A	0-15 PSI	0-25 PSI	H67K (30 lbs.)	9/16"-18	5 1/4 lbs.
H547A	0-15 PSI	0-25 PSI	H67K (30 lbs.)	Left hand	5 1/4 lbs.
H549A	0-15 PSI	0-25 PSI	H67K (30 lbs.)	Thread	5 1/4 lbs.

## FOR STATIONS ON COMPRESSED AIR PIPELINES.

Provides air at constant pressure and volume so spray guns and air tools can operate at top efficiency. Inlet tapped for 1/4" pipe thread.

Stock No.	Delivery Pressure	Gauge (2 1/2" dia.)	Outlet Connection	Shipping Weight
H548	0-100 PSI	H69B (200 lbs.)	H138 ("B")	5 lbs.
H544	0-100 PSI	None	9/16"-18 Right Hand Thread	5 lbs.

# LINE REGULATORS ("ECONOFLO")

## FOR WELDING AND CUTTING STATIONS ON OXYGEN PIPELINES

- H717 Inlet connection fits Airco #801-0169; Linde V7 and V47 station valves (CGA540).  
H725 Inlet connection fits Rego M960R and 7160 station valves.

Stock No.	Delivery Pressure	Gauge (2" dia.)	Outlet Connection	Shipping Weight
H717	0-100 PSI	H68N (150 lbs.)	H138 ("B")	3 1/4 lbs.
H725	0-100 PSI	H68N (150 lbs.)	9/16"-18 R.H.	3 1/4 lbs.

## FOR WELDING AND CUTTING STATIONS ON ACETYLENE (or other fuel gas) PIPELINES.

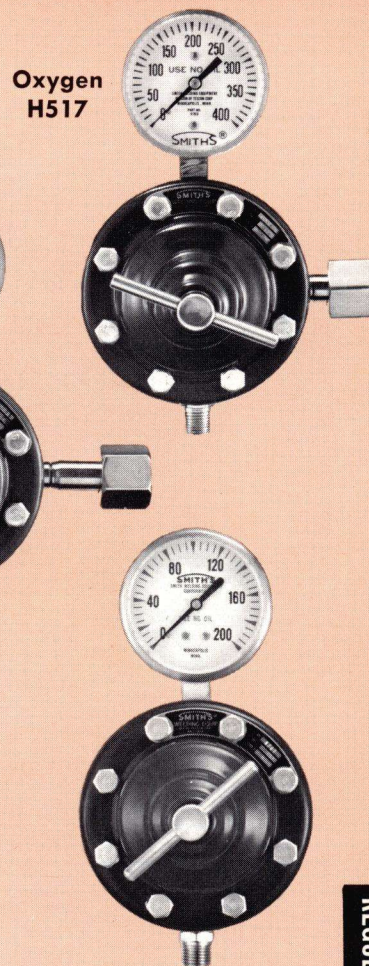
- H719 Inlet connection fits Airco #801-0168 station valve.  
H723 Inlet connection fits Linde V8 and V48 station valves.  
H727 Inlet connection fits Rego M961R and #7161 station valves.

Stock No.	Acetylene Delivery Pressure	Propane Delivery Pressure	Gauge (2" dia.)	Outlet Connection	Shipping Weight
H719	0-15 PSI	0-25 PSI	H67N 30 lbs.	H137 ("B")	3 1/4 lbs.
H723	0-15 PSI	0-25 PSI	H67N 30 lbs.	9/16"-18 LH	3 1/4 lbs.
H-727	0-15 PSI	0-25 PSI	H67N 30 lbs.		3 1/4 lbs.

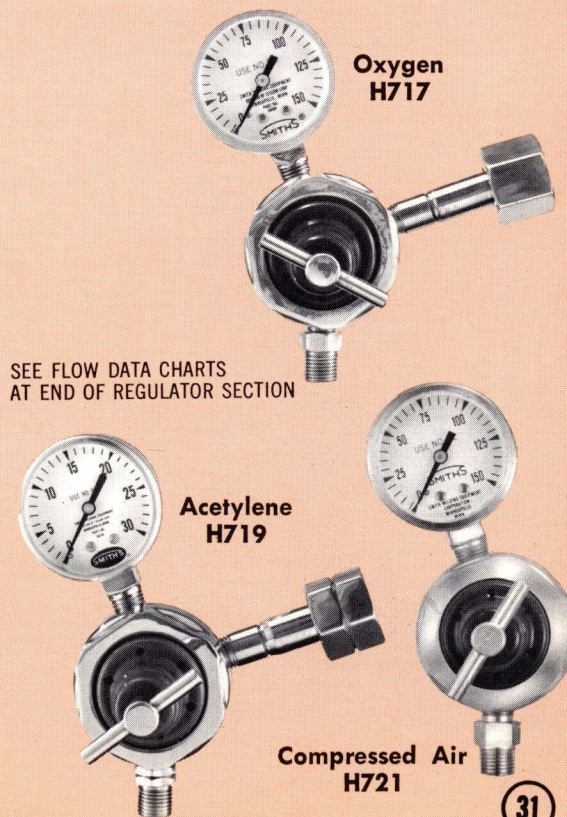
## FOR STATIONS ON COMPRESSED AIR PIPELINES

- H721 Compressed air line regulator with gauge. Inlet tapped for 1/4" pipe thread.  
H720 Compressed air line regulator without gauge. Inlet tapped for 1/4" pipe thread.

Stock No.	Delivery Pressure	Gauge (2" dia.)	Outlet Connection	Shipping Weight
H721	0-100 PSI	H68N (150 lbs.)	H138	2 lbs. 10 oz.
H720	0-100 PSI	None	9/16"-18 R.H.	2 1/2 lbs.



REGULATORS



SEE FLOW DATA CHARTS  
AT END OF REGULATOR SECTION

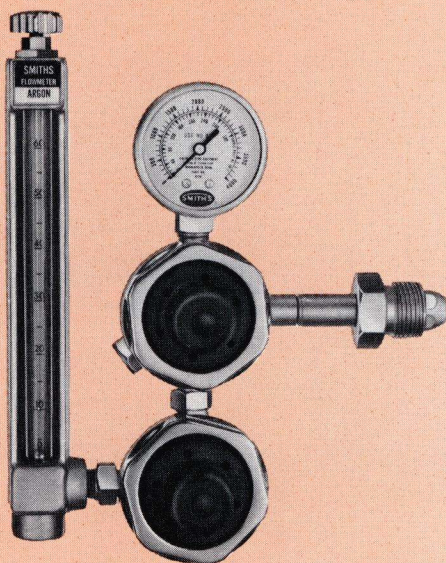




NWSA 230

# FLOWMETER REGULATORS

## TWO-STAGE



H1200

**REGULATORS THAT PAY FOR THEMSELVES!** By saving as little as 1 cubic foot per hour of Helium or Argon, SMITH'S regulator will pay for itself in 17 weeks. In most cases it will save more.

SMITH'S "1200" Series regulators feature TWO-STAGE REGULATION for maximum accuracy in the control of EXPENSIVE argon and helium gases commonly used in the shielded inert welding operations.

Regulators give exactly the flow of gas set on the Flowmeter tube. No expensive gas waste. Accuracy is achieved by:

1. Proven superiority of two-stage regulation in maintaining the absolute outlet pressure and flows with varying inlet pressure.
2. FLOWMETER TUBE has a unique ball guide which centers the ball float in the flow tube and keeps it centered. (A ball float in a non-centering tube allows the ball to float off center and will result in LARGER flows than the reading indicates.)
3. FLOW TUBE is extra long, back pressure compensated and is accurate to within 2% of the full scale reading.
4. FLOWMETER KNOB has a limiting device which locks flow at desired setting and prevents unauthorized tampering with the flow after initially set.

### REGULATOR

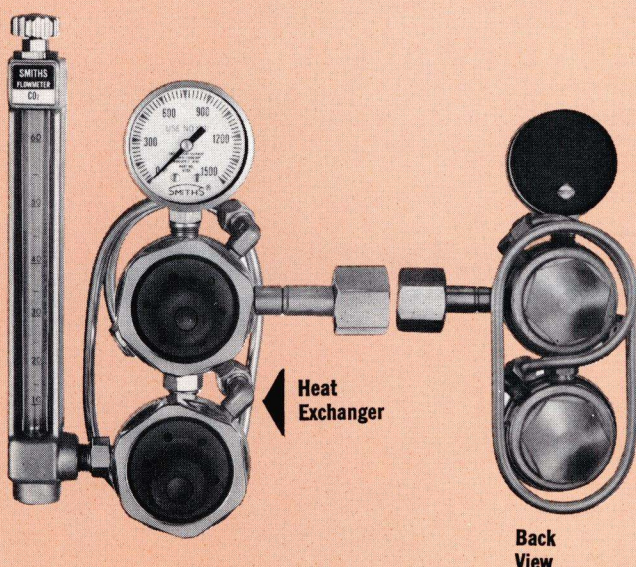
### FOR GAS

H1200A	ARGON
H1100A	ARGON
H1110A	HELIUM
H1210A	HELIUM, Water Pumped
H1215A	HELIUM, Water Pumped
H1220A	HELIUM
H1225A	OXYGEN

### REGULATORS

Stock No.	FLOWMETER	Flow Range	Inlet Connection	Outlet Connection	Shipping Weight
H1200A	H1101A	0-60 SCFH	CGA580	5/8" - 18 R.H. Internal	5 lbs. 2 oz.
H1100A	H1101A	0-60 SCFH	CGA540		5 lbs. 2 oz.
H1110A	H1111A	0-200 SCFH	CGA540		5 lbs. 2 oz.
H1210A	H1111A	0-200 SCFH	CGA580 W.P.		5 lbs. 2 oz.
H1215A	H1312A	0-60 SCFH	CGA580 W.P.		5 lbs. 2 oz.
H1220A	H1312A	0-60 SCFH	CGA540		5 lbs. 2 oz.
H1225A	H1226A	0-5 SCFH	CGA540		5 lbs. 2 oz.

## CO<sub>2</sub> FLOWMETER REGULATOR (TWO-STAGE) H1250C



SMITH'S Two-Stage CO<sub>2</sub> is equipped with a heat exchanger unit which PREVENTS FREEZE-UPS which occur when drawing an excessive volume of carbon dioxide from cylinders.

In addition to this feature it has the same quality features of the "1200" Series regulators listed above.

1. PROVEN SUPERIORITY of two-stage regulation for the accurate control of gases.
2. SELF CENTERING Flowmeter tube.
3. Accurate, extra-long, back pressure compensated flow tube.
4. Locking flowmeter adjusting knob.
5. All flow tubes are made of stress-relieved Pyrex glass.
6. Heat exchanger tube warms gas and prevents internal freeze-ups.

H1250C

Flow Range 0-60 S.C.F.H.  
Flowmeter H1251A  
Inlet Connection CGA320  
Outlet Connection 5/8"-18 R.H. Internal  
Shipping Weight 5 lbs. 6 oz.



# FLOWMETER REGULATORS

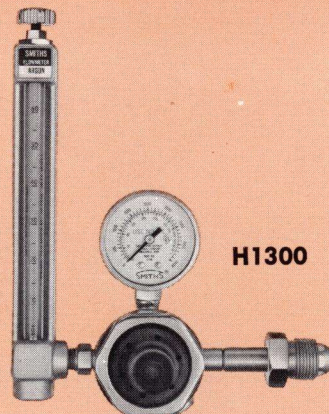
## SINGLE STAGE



® NWSA 230

Compact, moderately priced SINGLE-STAGE flowmeter regulators. Ideal for operations not requiring two-stage regulation. The "1300" Series regulators have many features found in more expensive flowmeter regulators.

1. FLOWMETER TUBE has a unique ball guide which centers the ball float in the flow tube and keeps it centered. (A ball float in a non-centering tube allows the ball to float off-center and will result in GREATER flows than the reading indicates.)
2. FLOW TUBE is extra long, back pressure compensated and is accurate to within 2% of the full scale reading.
3. Flowmeter KNOB has a limiting device which locks flow at desired setting and prevents unauthorized tampering with the flow after initially set.



H1300

FLOWMETER Regulator	For Gas	Flowmeter	Flow Range	Inlet Connection	Outlet Thread	Shipping Weight
H1300A	Argon, W.P.	H1101A	0-60 SCFH	CGA580	5/8"-18 R.H. Internal	4 lbs. 4 oz.
H1301A	Argon	H1101A	0-60 SCFH	CGA540		
H1310A	Helium, W.P.	H1111A	0-200 SCFH	CGA580		
H1311A	Helium	H1111A	0-200 SCFH	CGA540		
H1313A	Helium, W.P.	H1312A	0-60 SCFH	CGA580		
H1314A	Helium	H1312A	0-60 SCFH	CGA540		
H1350A	CO <sub>2</sub>	H1351A	0-30 SCFH	CGA320		

## FLOWMETERS

SMITH'S Flowmeters are designed to measure ACCURATELY the flow of Argon, Helium and CO<sub>2</sub>.

Flowmeter assemblies are designed to operate at an inlet pressure of 30 PSI. They may be attached to regulators or pipeline installations. All flowmeters have 1/4" NPT female threads. Use H1105 or H1106 adaptors to connect flowmeter to regulators or pipelines having 5/8"-18 R.H. male threads (I.A.A. Class "B").

1. Flowmeter KNOB has a limiting device which locks flow at desired setting and prevents unauthorized tampering with the flow after initially set.
2. Aluminum housing protects the flowmeter tube from damage on three sides.
3. Flow tube is extra long, back pressure compensated and is accurate to within 2% of the full scale reading. All tubes are made of stress-relieved Pyrex glass.
4. Flow tube has a unique ball guide which centers the ball float in the flow tube and keeps it centered. A ball float in a non-centering tube allows the ball to float off-center and will result in GREATER flows than the reading indicates.

FLOWMETER NO.	Flow Range	For Gas	Tube No.	Inlet Thread	Outlet Thread	Shipping Weight
H1101A	0-60 SCFH	Argon	H1101-1	1/4" NPT Female	5/8"-18 R.H. Internal	10 1/4 oz.
H1111A	0-200 SCFH	Helium	H1111-1			
H1312A	0-60 SCFH	Helium	1870			
H1351A	0-30 SCFH	CO <sub>2</sub>	1252			
H1251A	0-60 SCFH	CO <sub>2</sub>	1263			
H1226A	0-5 SCFH	Oxygen	3064			



H1101

REGULATORS

## FLOWMETER ADAPTOR

H1105 adapts all of the above flowmeters to regulator or pipelines which have outlets on horizontal axis. Adaptor has 5/8"-18 R.H. female threads on inlet end and 1/4" NPT male threads on outlet.

H1106 Same as above but used with regulators or pipelines which have outlets 90° to the horizontal axis.

H1107 adapts 'A' model flowmeters to permit the use of hose connections with 5/8"-18 R.H. internal thread.

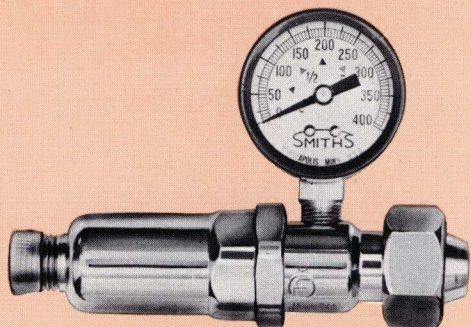
H1107

H1105



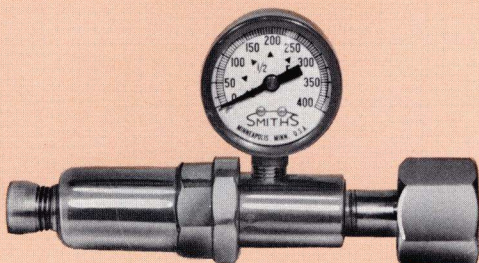
FLOWMETER ADAPTOR





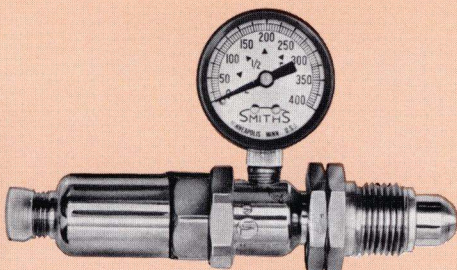
### H825

Fits "B" and Autolite Tanks  
Weight 17 oz.



### H826

Fits Commercial Style Tanks  
Weight 18 oz.

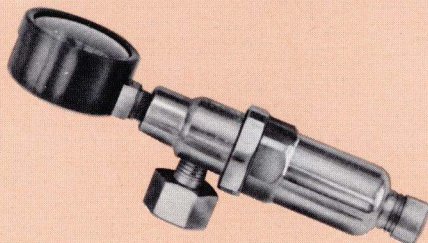


### H827

Fits P.O.L. Tanks

### H827A—

Same as H827 but less gauge  
Weight 17 oz.



### H828

Fits "MC" Style Tanks  
Weight 14 oz.

SMITH'S PRE-SET Fuel Gas Regulators—the most fool-proof fuel gas regulator you can use! More than 40,000 already in use. Compact and of unique design, these regulators accurately provide correct amounts of gas for each tip size.

Regulators are adjusted at the factory to deliver fuel gas at an outlet pressure of 12 to 15 PSI. Adjusting needle valve on torch assures correct volume of gas for each tip. All regulators have  $\frac{9}{16}$ "-18 L.H. outlet thread ("B" size).

### PRE-SET REGULATOR FEATURES:

- Pre-set delivery pressure
- Long-wearing seat
- Inlet filter to keep out dirt
- Dependability
- Simple operation
- Low cost

### ADAPTORS For Pre-Set Regulators



H5



H6



H7



H63



H64



R23A

Stock No.	H5	H6	H7	H63	H64	R23A
Adapts	H825	H828	H828	H825	H825	$\frac{3}{16}$ " I.D. Fuel Hose Connection
To Fit	"MC" Tank	P.O.L. Tank	"B" Tank	P.O.L. Tank	Commercial Tank	$\frac{1}{4}$ " I.D. Fuel Hose Connection

SEE FLOW DATA CHARTS  
AT END OF REGULATOR SECTION

For additional descriptive information, see first page of regulator section.



## SAFETY CHECK VALVES\*

Prevent the explosive mixture of oxygen and fuel gas in regulators caused by the accidental back flow of gases. Check valve automatically senses back flow and closes. Check valve opens under a positive pressure of 2½ PSI. Closes under a positive pressure of ½ PSI.

### AVAILABLE IN TWO STYLES

Style 1. H685A, H686A check valves attach directly to the standard regulator outlet connection. Installation takes only seconds. Fits all SMITH'S regulators. Fits hose connections with ⅝"-18 thread (IAA "B" conn.).

H685A, for oxygen.

H686A, for fuel gases.

Style 2. H683C, H684C, check valves are installed in regulator body for permanent installation after first removing regulator outlet connection. Fits all SMITH'S regulators except PRE-SET regulators. Fits hose connections with ⅝"-18 thread (IAA "B" conn.).

H683C, for oxygen.

H684C, for fuel gases.

\*Listed under the Reexamination Service of the Underwriters' Laboratories, Inc.



**H685A**  
Weight 4 oz.



**H686A**  
Weight 4 oz.



**H683C**  
Weight 3 oz.



**H684C**  
Weight 3 oz.

## H180 REGULATOR HARD HAT

Reduce costly gauge replacement with SMITH'S H180 Regulator Hard Hat. Also promote safety . . . reduce possibility of gas loss from damaged gauge shanks. Specially designed for extra strength, this rugged 14-gauge steel guard helps absorb the shock of swinging and falling objects . . . protects gauges if gas cylinder tips over. Bright yellow, baked enamel finish. Quickly and easily attached by removing regulator bonnet screws.

Fits all SMITH'S BB Single Stage regulators and all BB-2 Two-Stage regulators.



**H180**  
Weight 1½ lbs.

## PRESSURE GAUGES — FOR ALL REGULATORS



REGULATORS

Pressure Gauge Chart	Gauge No.	H67K	H67N	H68A	H68N	H69B	H70D	H68P	H70K	H70N	H70R	H71C	H71N
Pressure PSI		30	30	60	150	200	400	1500	1500	400	400	4000	4000
Graduations		1 lb.	1 lb.	2 lbs.	5 lbs.	5 lbs.	10 lbs.	60 lbs.	25 lbs.	10 lbs.	50 lbs.	100 lbs.	100 lbs.
Dia. Inches		2½	2	2½	2	2½	2½	2 lbs.	2	2	1½	2½	2
Gauge Glass		H73	H72C	H73	H72C	H73	H73	H73	H72C	H72C	H77A	H73	H72C

All 2½" diameter gauges have brass cases and bronze bourdon tubes. ¼" pipe thread on all inlets. Gauges should not be used at pressures greater than two-thirds of the maximum calibration.

## REGULATOR INLET ADAPTORS

SMITH'S acetylene regulators are supplied with a commercial type inlet (female nut) or a p.o.l. type inlet (male nut). The adaptors here permit use of these regulators with other acetylene cylinders.



Acetylene Regulator Adaptors	Part Number	H59	H59A	H60	H61	H63	H64	H88*	H86†	H87‡	CGA580-540
Regulator Connection Thread		.845"-14 R.H. Commercial	.845"-14 R.H. Commercial	.834"-14 R.H. Commercial	.898"-14 L.H. POL	.895"-18 R.H. Auto-Lite	.895"-18 R.H. Auto-Lite	CGA 510	CGA 300	CGA 300	CGA 580
to Cylinder Connection Thread		.875"-14 L.H. POL	.875"-14 L.H. POL	.922"-18 R.H. Auto-Lite	.922"-18 R.H. Auto-Lite	.875"-14 L.H. POL	.845"-14 R.H. Commercial	CGA 300	CGA 510	CGA 510	CGA 540








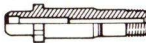







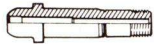




\*One Piece Adapter

†Three Piece Straight Adapter

‡Three Piece 90° Adapter

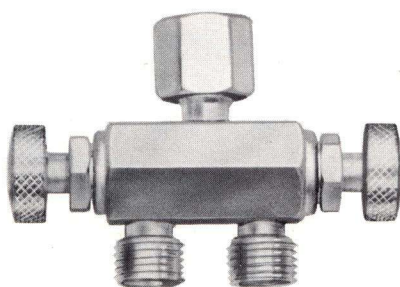


## REGULATOR INLETS, NUTS, AND TAILPIECES

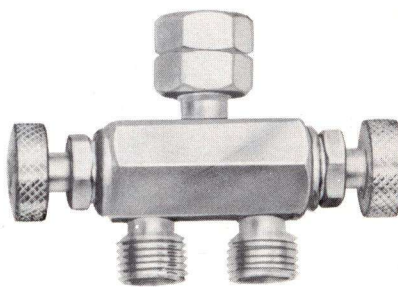
Conn. No.	Standard Connection For: (Gas)	Nut No.	Tailpiece (Gland) No.	NUTS	TAILPIECES
CGA200	Acetylene, MC Tank	CGA200-1	CGA200-2		
CGA300	Alternate standard for Acet. and LP	CGA300-1	CGA300-2		
CGA320	CO2	CGA300-1	CGA320-2 With Washer		
CGA350	Hydrogen	CGA350-1	CGA350-2		
CGA410	Canadian Standard for Acetylene	CGA410-1	CGA410-2		
CGA510	Acetylene and LP	CGA510-1	CGA510-2		
CGA540	Oxygen (Industrial)	CGA540-1	CGA540-2		
CGA540M	Oxygen (Medical) Nickel Plated	CGA540-1M	CGA540-2M		
CGA580	Water Pumped Air, Argon, Helium, Nitrogen	CGA580-1	CGA510-2		
CGA590	Oil Pumped Air, Argon, Helium, Nitrogen	CGA590-1	CGA510-2		

Order Nuts and Tailpieces Separately

## TWO HOSE MANIFOLDS (FOR USE ON REGULATOR OUTLETS)



NE135



NE136



NE131 OXYGEN  
NE132 ACETYLENE

No.	Use With:	Female Inlet Thread	Male Outlet Thread	Standard Package	Package Weight
NE135	Oxygen	9/16"-18 R.H.	9/16"-18 R.H.	1	7 oz.
NE136	Fuel Gas	9/16"-18 L.H.	9/16"-18 L.H.	1	7 oz.
NE131	Oxygen	9/16"-18 R.H.	9/16"-18 R.H.	1	7 oz.
NE132	Fuel Gas	9/16"-18 L.H.	9/16"-18 L.H.	1	7 oz.

## NEEDLE VALVES

Attach to outlet connection of regulator, permitting operator to adjust or shut off gas at the regulator without closing tank cylinder valve or moving the regulator adjusting screw.

H845 For fuel gas regulators. Fits outlet connections with a 9/16"-18 L.H. thread.

H846 For oxygen regulators. Fits outlet connections with a 9/16"-18 R.H. thread.





The Flow Capacity Curves illustrated on the following pages show the maximum flows (CFH) possible with various combinations of inlet and outlet pressures for all major SMITH'S Regulators. **EXAMPLE** (see flow curve for H102E Oxygen Cutting Regulator, page 38):

**PROBLEM:** To determine maximum flow possible from the H102E regulator outlet pressure of 150 psig, and an inlet pressure of 800 psig.

**PROCEDURE:** 1. Locate the point showing a regulator outlet pressure of 150 psig (7th line from left of chart).  
2. Follow this line upwards until it intersects the line representing an inlet pressure of 800 psig (7th curve from top).  
3. Refer to flow figures on left side of chart, and you find that, at these given inlet and outlet pressures, this regulator provides a maximum flow of 3200 cfh.

*These curves can be used in several ways:*

1. To determine maximum flow possible when inlet and outlet pressures are known (as in above example).
2. To determine required outlet pressure when inlet pressure and flow are known.
3. To determine required inlet pressure when outlet pressure and flow are known.

In other words, as long as two of the variables are known, you can always find the third. Inlet and outlet pressures are expressed in pounds per square inch gauge (psig); flows are expressed in cubic feet per hour (CFH) of free air or, as often used, air at standard conditions of pressure and temperature (60°F and 14.7 psig).

Because all of the curves are based on results obtained by using free air, the flow must be corrected for specific gravity when other gases are to be used. Here are the gases commonly used in most regulator applications along with their specific gravity correction factors.

Acetylene . . . . .	1.054
Oxygen . . . . .	.951
Propane . . . . .	.810
Butane . . . . .	.706
Methane . . . . .	1.342
Hydrogen . . . . .	3.790
Nitrogen . . . . .	1.015
Carbon Dioxide . . . . .	.810
Argon . . . . .	.852
Helium . . . . .	2.690

Once the maximum flow has been determined, simply multiply by the proper correction factor for the gas to be used. **EXAMPLE:** Using the answer to our first example above, 3200 cfh, multiply by 1.015 if nitrogen is to be used; multiply by .951 if oxygen is to be used; by .810 for carbon dioxide; by .852 for argon, etc. You'll see that this correction factor becomes extremely important when such gases as hydrogen and helium are used.

## OTHER EXAMPLES

**PROBLEM:** To determine minimum inlet pressure necessary to maintain a flow of 2200 cfh of oxygen at a regulator outlet pressure of 200 psi. Regulator to be used is the H102E.

**PROCEDURE:** 1. Convert required flow of oxygen to an equivalent flow of free air ( $2200 \div .951 = 2313$  cfh.)  
2. Locate required flow (approx. 2300 cfh) at left side of chart.  
3. Follow this line across until it intersects the line representing an outlet pressure of 200 psig (9th line from left of chart).  
4. This point of intersection shows that an inlet pressure of slightly less than 600 psig (probably no less than 575 psig) will satisfy the requirements.

**PROBLEM:** To determine if SMITH'S H717 Oxygen Line Regulator can deliver sufficient flow of oxygen to operate a machine cutting torch using 4 SC21 high speed cutting tips. Material to be cut is 2" thick; line pressure available is 150 psig.

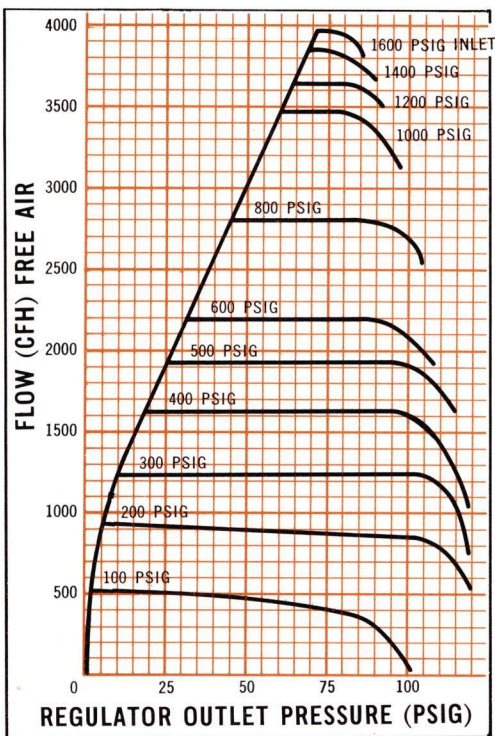
**PROCEDURE:** 1. Refer to cutting data chart for SC21 series tips (page 15). You'll see that the SC21—4 tips is recommended for 2" material, and each tip requires 195 cfh of cutting oxygen at 100 psig at the torch tip.  
2. Because 4 tips are being used, multiply  $195 \times 4 = 780$ . Thus, the total flow requirement is 780 cfh at 100 psig.  
3. Convert required flow of oxygen to an equivalent flow of free air ( $780 \div .951 = 820$  cfh).  
4. Locate regulator outlet pressure of 100 psig (11th line from left side of chart).  
5. Follow this line upward until it intersects the line representing an inlet pressure of 150 psig (4th curve from the top).  
6. Refer to flow figures on left side of chart, and you find that, at these inlet and outlet pressures, this regulator provides a maximum flow of approximately 740 psig.  
7. Using specific gravity correction factor for oxygen (from table above) multiply  $740 \times .951 = 704$  cfh. This, then, is the maximum flow of oxygen possible from this regulator at the available inlet pressure and required outlet pressure.  
8. It now becomes evident that this regulator doesn't have the necessary capacity to handle the job. If line pressure could be increased to approximately 170 psig, it would suffice. If this is impossible, however, a higher capacity regulator should be used. In this case SMITH'S H517 Type BB Oxygen Line Regulator would serve nicely.

It might be well to point out that in the foregoing example it was determined that a pressure of 100 psig was required at the torch tip. This may or may not mean a pressure of 100 psig at the regulator outlet depending on how much line, hose, fittings, etc. may be installed between the regulator and tip. These items all contribute to slight pressure drop, and it may be necessary to go to a slightly higher regulator outlet pressure to achieve a 100 psig pressure at the torch tip.

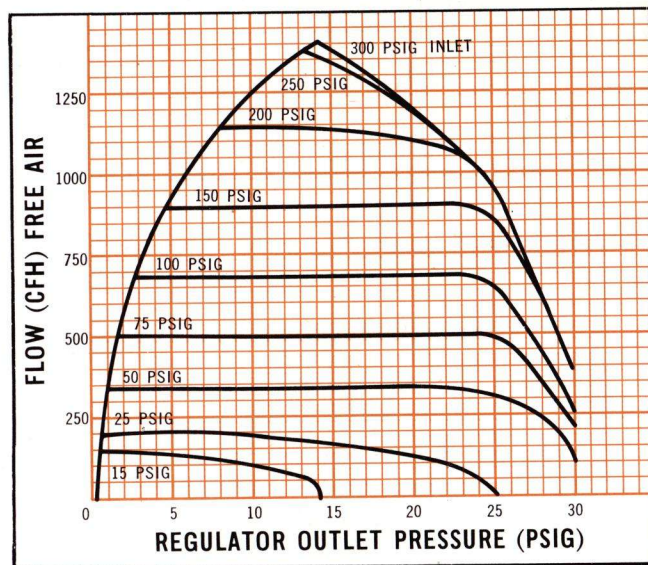


# FLOW CAPACITY CURVES

for SMITH'S Regulators

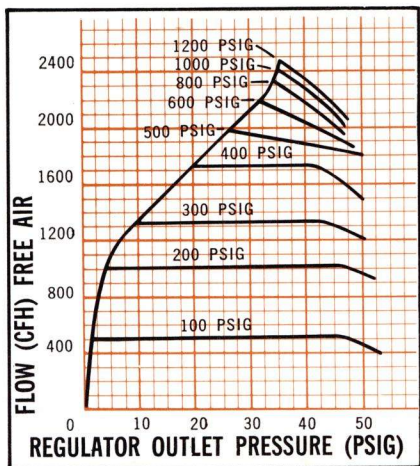


H100  
H97  
H401  
H403  
H481 } BB oxygen  
welding regulators

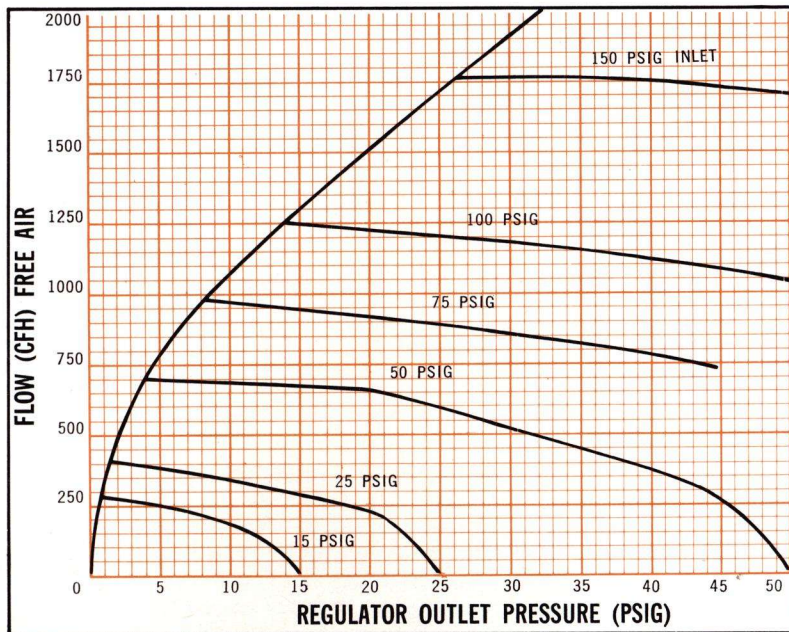


H101J } BB acetylene regulator  
H101P }

Flow curves shown on these charts represent maximum flows. To attain optimum regulation characteristics use flow rates 10% below that shown.



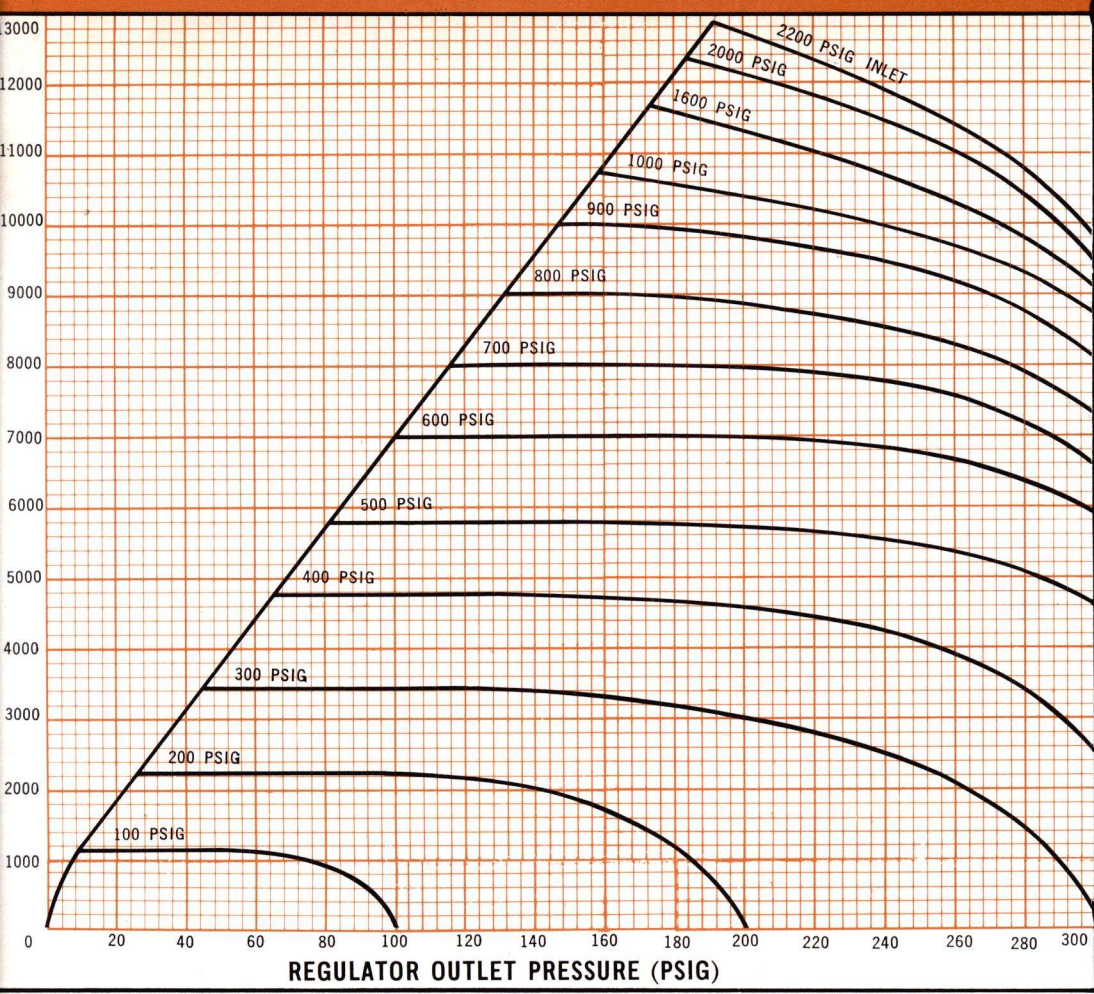
H100C } BB oxygen welding regulator



H101PA } acetylene & LP gas regulator

REGULATORS

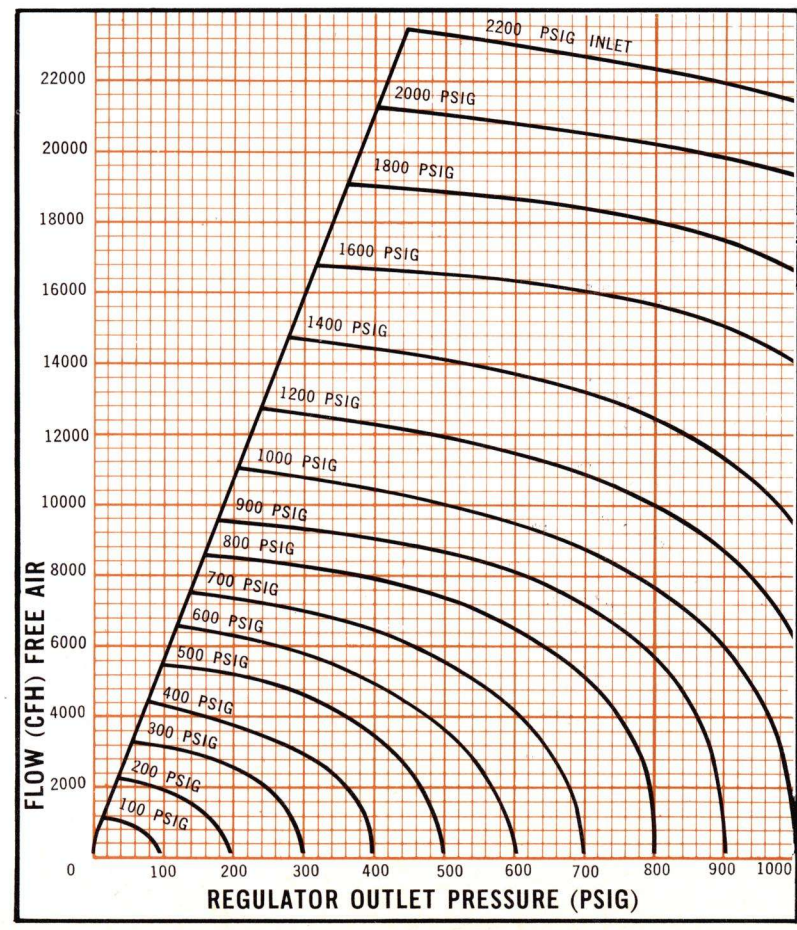




H102E  
H451A  
H452 } BB oxygen cutting regulators

Low curves shown on these charts represent maximum flows. To attain optimum regulation characteristics use flow rates 10% below that shown.

H102F } BB master regulator

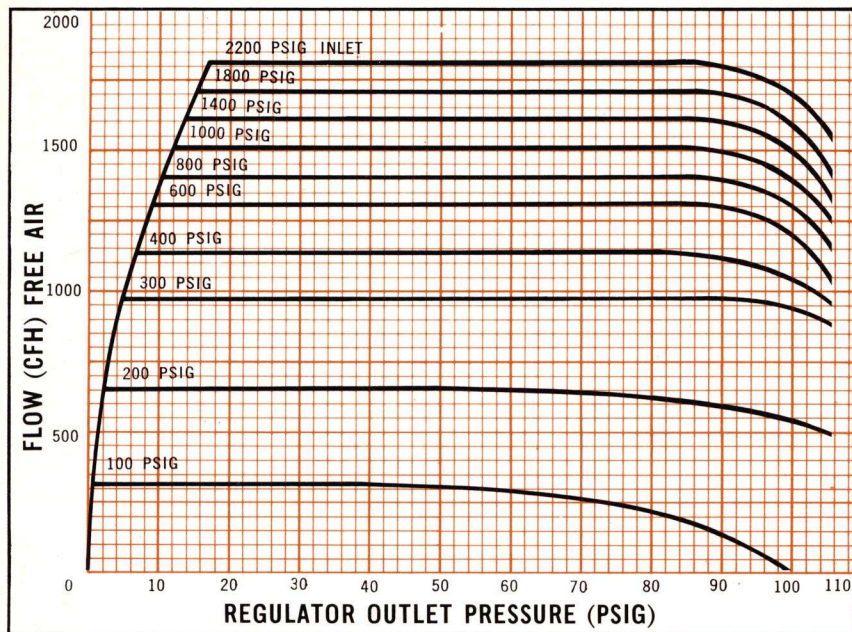


REGULATORS

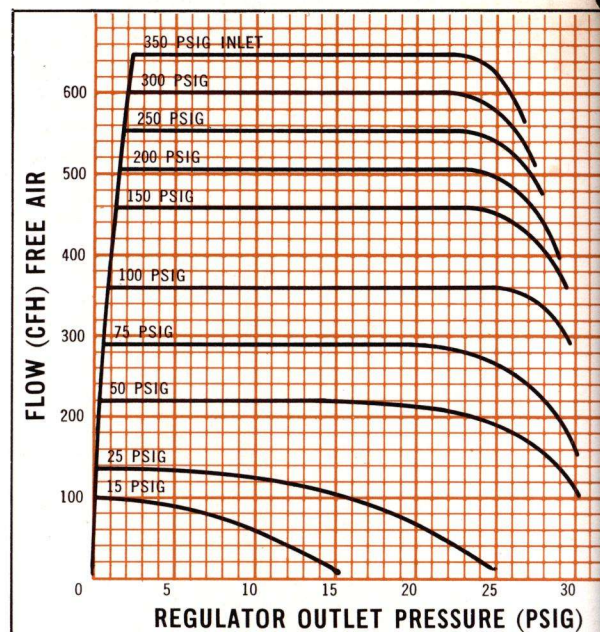


## FLOW CAPACITY CURVES

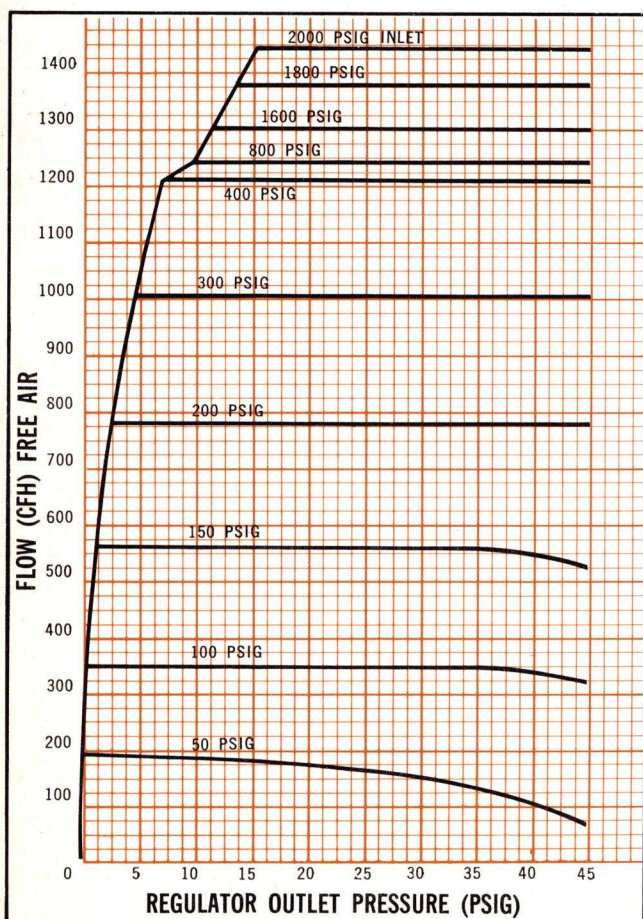
for SMITH'S Regulators



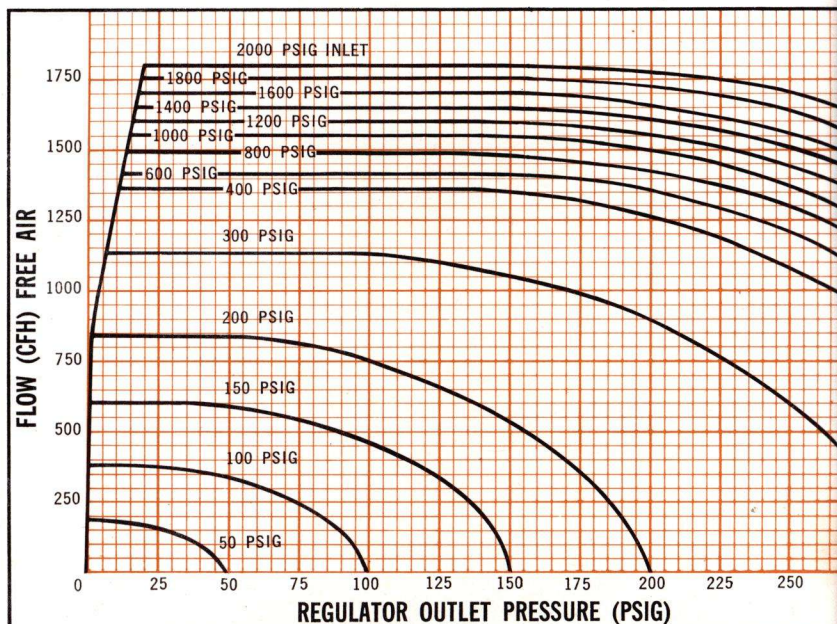
H313  
H421  
H423  
H491 } BB-2 oxygen regulators



H315  
H315P } BB-2 acetylene two-stage regulators



H313C } BB-2 oxygen welding two stage regulator



H317A } BB-2 oxygen cutting two stage regulator

Flow curves shown on these charts represent maximum flows. To attain optimum regulation characteristics use flow rates 10% below that shown.

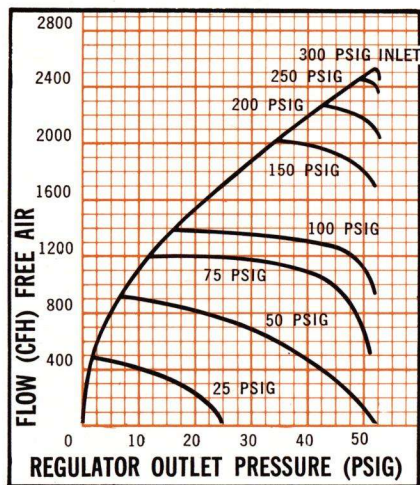


# FLOW CAPACITY CURVES

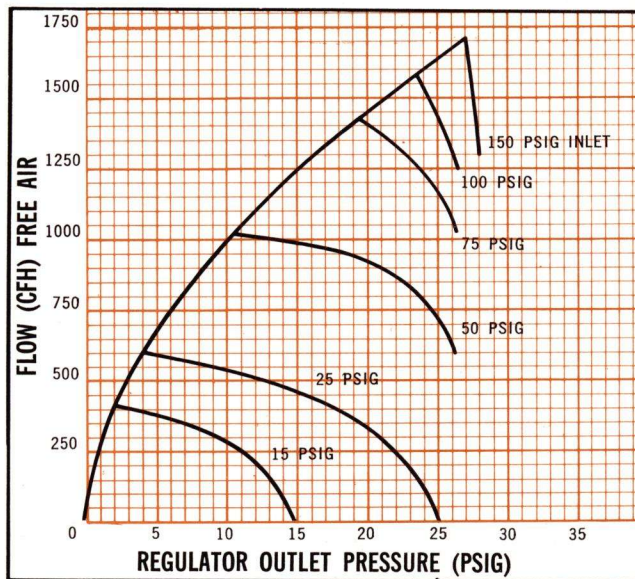
for SMITH'S Regulators



NWSA 230

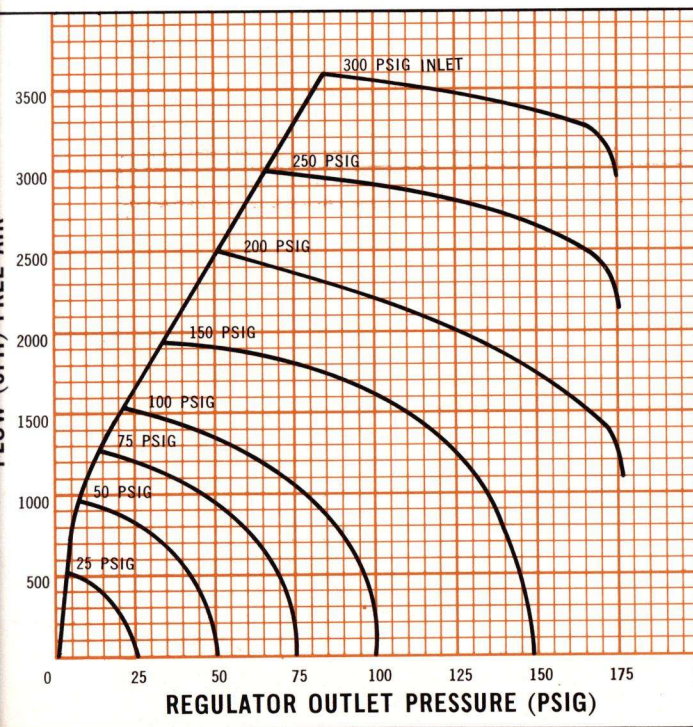


H501A  
H503  
H505 } BB oxygen welding  
line regulators

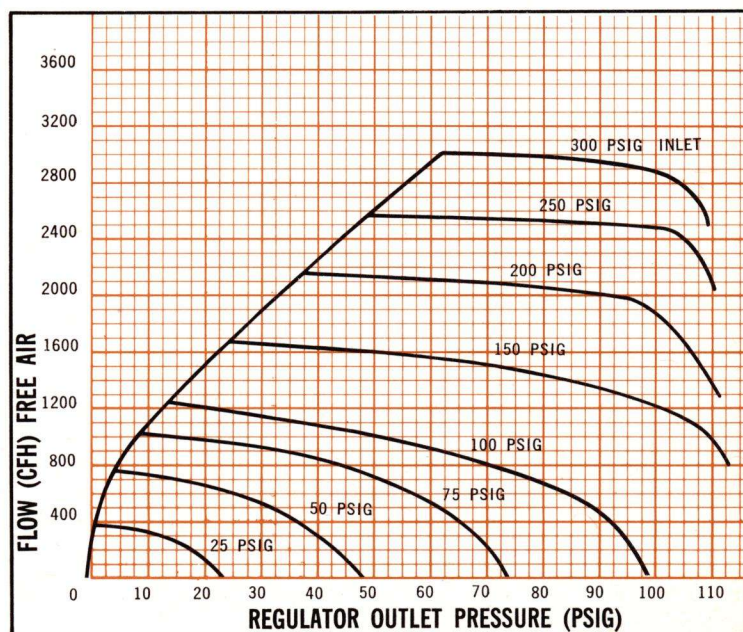


H541A  
H539A  
H547A  
H549A } BB acetylene or fuel gas  
line regulators

Flow curves shown on these charts represent maximum flows. To attain optimum regulation characteristics use flow rates 10% below that shown.



H517  
H519  
H521 } BB oxygen cutting  
line regulators



H548 } BB line regulator compressed air

REGULATORS

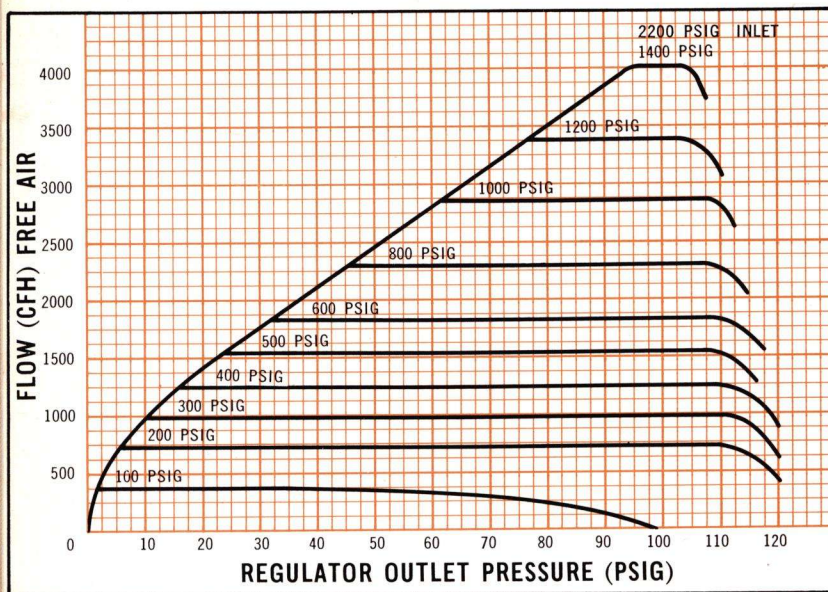




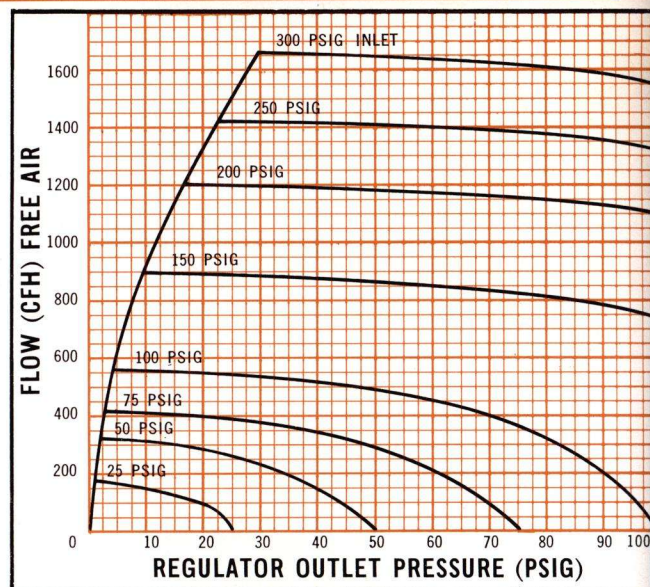
# FLOW CAPACITY CURVES

for SMITH'S Regulators

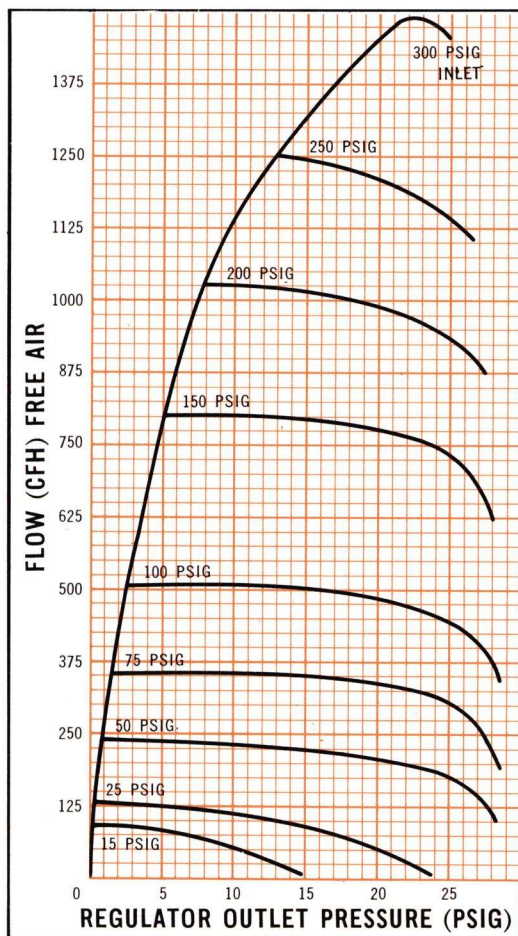
NWSA 230



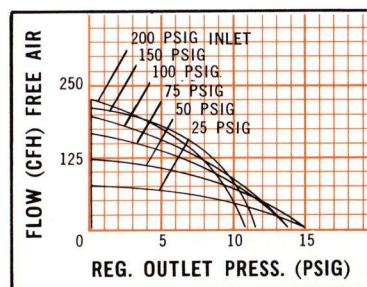
**H713** — ECONOFLO oxygen welding regulator



**H717  
H721  
H725** — ECONOFLO oxygen cutting line regulators

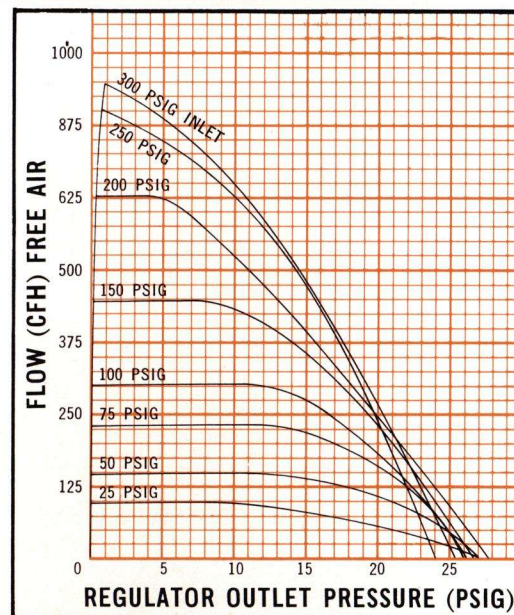


**H715  
H715P  
H719  
H723  
H727** — ECONOFLO acetylene regulators



**H825  
H826  
H827  
H828** — PRE-SET fuel gas regulator  
maximum capacity curves for various inlet pressures with regulator preset at 15 psi (acetylene use).

Flow curves shown on these charts represent maximum flows. To attain optimum regulation characteristics use flow rates 10% below that shown.



**H827** — PRE-SET fuel gas regulator  
maximum capacity curves for various inlet pressures with regulator preset at 25 psi (propane or other uses).



## STAR CUTTER OUTFITS

### FOR MEDIUM PRESSURE ACETYLENE OR LP-GASES

The Star Cutter provides a medium duty cutting capacity plus top economy and performance ease — is perfectly suited for hundreds of jobs in metal-working, fabricating, repair, salvage, and other related industries. Cuts up to 2½" steel with tips provided, additional cutting tips available for cutting steel up to 12" thick.

ALL STAR CUTTER outfits feature the Silver Star cutting torch (choice of 75° or 90° head angle) with quick changing "Slip-In" cutting tips, ball-style adjustment valves and in-tip mixing of gases. Heavy duty regulators provide fine pressure control and gas volume for maximum cutting efficiency and quality.

COMPLETE 9-PIECE CUTTING OUTFITS include cutting torch, 3 cutting tips, heavy duty fuel gas regulator (choice of CGA510 or CGA300 inlet connection), high volume oxygen cutting regulator, flint lighter, goggles and 5-way wrench.



Outfit No.	Fuel Gas	Torch Head Angle	REGULATORS		Cutting Tips	Accessories
			Oxygen	Fuel Gas (inlet conn.)		
SS345	Acetylene	75°	H102E	H101J (CGA300)	SC12-0 SC12-1 SC12-3	N109A goggles, N113A lighter, N230 wrench
SS345P		75°	H102E	H101PA (CGA510)		
SS349		90°	H102E	H101J (CGA300)		
SS349P		90°	H102E	H101PA (CGA510)		
SS335P	LP-GASES	75°	H102E	H101PA (CGA510)	SC50A-0, 1 & 3	
SS339P		90°	H102E	H101PA (CGA510)		

## LANCER CUTTING OUTFITS

### INJECTOR STYLE FOR LOW PRESSURE FUEL GASES

Use low-pressure, low cost fuel gases such as natural gas, manufactured gas, city and LP-Gases to slash your cutting fuel gas costs. The Silver Star Injector cutting torch can cut up to 10" thick steel in one pass with source fuel gas pressures as low as 3 ounces per square inch up to medium pressures of 1 to 25 pounds per square inch.

CLEAN LINE HEAD DESIGN. Cutting head and tubes feature a streamlined design to provide excellent cutting visibility and smooth torch handling. Eliminates bulkiness and provides better balance. The cutting torch also features SMITH'S exclusive reversible under-over cutting lever, durable silver soldered joints, ball-style adjusting valves and quick changing "Slip-In" cutting tips.

COMPLETE 9-PIECE CUTTING OUTFITS include torch, 3 cutting tips with cutting range up to 2½", heavy duty fuel gas regulator, high volume oxygen cutting regulator, flint lighter, goggles and 5-way wrench.



OUTFITS

Outfit No.	Cutting Torch	Head Angle	REGULATORS		Cutting Tips	Accessories
			Oxygen	Fuel Gas (inlet conn.)		
SS855P	SC845	75°	H102E	H101PA (CGA510)	SC31-0 SC28-1 SC28-3	N109A goggles, N113A lighter, N230 wrench
SS859P	SC849	90°	H102E	H101PA (CGA510)		





## HEAVY DUTY COMBINATION WELDING AND CUTTING OUTFITS

Fully professional... rugged construction to withstand constant and heavy use... heavy duty capacity to take care of those big jobs. The SW1 torch body has a welding capacity of over 1 inch and the SC209 cutting assembly has a cutting range of up to 6" steel.

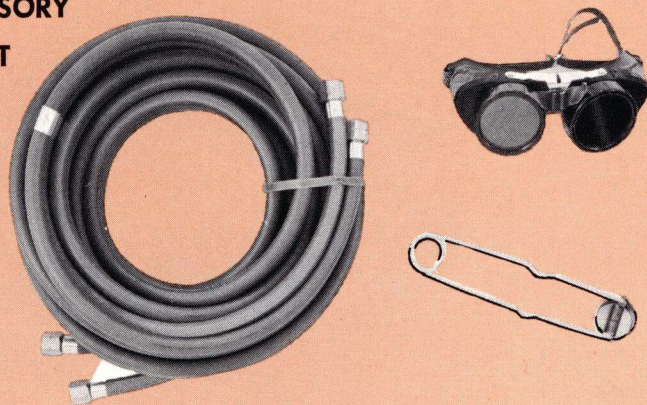
The STAR 98 comes with Slip-In copper welding tips in the three most useful sizes for welding  $\frac{1}{16}$ " to  $\frac{3}{8}$ " steel. Tips feature exclusive Soft-Flame design for more economical, faster welding and better puddle control. The cutting tip features SMITH'S exclusive replaceable soft seats and quick changing Slip-In design — has  $\frac{1}{2}$ " to  $\frac{5}{8}$ " cutting capacity. Heavy duty single stage oxygen and acetylene regulators provide dependable and accurate regulation for quality welding, cutting and brazing.

Versatile... wide range of special purpose tips available for heating, gouging, plate cutting, rivet cutting, rivet blowing, flue cutting, metal washing, lead buring and other applications. Shipping weight: 21½ lbs.; with accessory kit: 27¾ lbs.

Outfit No.	Acetylene Regulator	Components Common To All Outfits	Accessory Kit
STAR 98	H101PA (CGA510 inlet conn.)	SW1 Torch Body SW203 Welding Tip SW205 Welding Tip SW209 Welding Tip SC209 Cutting Assembly SC12-1 Cutting Tip H100 Oxygen Regulator	None
STAR 98-300	H101J (CGA300 inlet conn.)		None
STAR 98A	H101PA (CGA510 inlet conn.)		N109A goggles H113A lighter RL1131 hose, $\frac{1}{4}$ " I.D. 25 ft. long.
STAR 98A-300	H101J (CGA300 inlet conn.)		

OUTFITS

### 3 PIECE ACCESSORY KIT



Supplied in STAR 98A and STAR 98A-300 outfits

## ACCESSORY KIT

Supplied in the STAR 98A and STAR 98A-300 outfits. Hose is high quality two-in-one fuel gas and oxygen hose combined. Has  $\frac{1}{2}$  inch inside diameter. Is 25 feet long. Protective goggles are adjustable, rugged construction and will fit over prescription glasses. Convenient flint lighter is easy to handle, easy to operate.



## BIG 98 ACETYLENE WELDING AND CUTTING OUTFITS

The original, most versatile "starter" outfit on the market today — and the most copied! Torch body is the popular Pipeliner type capable of handling all but the heaviest work with the many welding, heating and special purpose tips that are available. Pipeliner cutting assembly uses six sizes of tips plus four special tips to give it broad usefulness. Total welding range is  $\frac{1}{32}$ " to  $\frac{7}{8}$ ". Cutting range is  $\frac{1}{8}$ " to 3". Recommended for farm, range, hobby shops, repair shops or manufacturing shops requiring a low cost, high quality outfit which can be easily expanded to all types of welding, brazing, heating, soldering and cutting.

Torch body and cutting assembly have silver solder construction for long, maintenance free operation. Exclusive "Slip-In" welding and cutting tips can be changed in just seconds — without the use of a wrench. Cutting tips have "In-Tip" mix of oxygen and acetylene.

### BIG 98A OUTFIT... WITH TWO ADJUSTABLE SINGLE STAGE REGULATORS

This deluxe combination outfit is identical to the BIG 98 except that it has an adjustable acetylene single stage regulator in place of the Preset acetylene regulator.



### CONTENTS OF BIG 98 and BIG 98A OUTFITS (Acetylene and Oxygen)

Outfit No.	Torch Body	Welding Tips	Cutting Assembly	Cutting Tip	Oxygen Regulator	Acetylene Regulator	Hose	Accessories	Shipping Weight
Big 98	MW5	All outfits have MW203, MW205, MW209	MC509	MC12-1	H713	H827	RL498	Each outfit has pair N109B goggles and N113A lighter	14 lbs.
Big 98L	MW5		MC509	MC12-1	H713	H827	None		12 lbs.
Big 98A	MW5		MC509	MC12-1	H713	H715P	RL498		15 lbs.
Big 98AL	MW5		MC509	MC12-1	H713	H715P	None		13 lbs.

## LP-GAS COMBINATION OUTFITS

### BIG 98LP

The Big 98LP is the first outfit on the market especially designed to use low cost, readily available LP-Gas as a fuel gas. The oxy-propane (LP-Gas) flame is ideal for cutting, heating, brazing, soldering, bending, straightening and forming. Big 98LP fits the need of those who do little fusion welding (or use an arc welder for that purpose) but who want a gas torch for its versatility. For fusion welding add oxy-acetylene tips.



### CONTENTS OF BIG 98LP OUTFITS (LP-Gas and Oxygen)

Outfit No.	Torch Body	Oxy-LP-Gas Heating Tip	Air-LP-Gas Soldering Tip	Cutting Assembly	Cutting Tip	Oxygen Regulator	Fuel Gas Regulator	Hose	Shipping Weight
Big 98LP	MW5	MW410	NE182-41	MC409	SC50A-1	H713	H827	RL498	14 lbs.
Big 98LPL	MW5	MW410	NE182-41	MC409	SC50A-1	H713	H827	None	12 lbs.

NOTE — In addition to all items listed, each outfit also includes a pair of N109B goggles, N113A torch lighter and MW60 tip adaptor.





### LITTLE BIG 98

Light weight, compact acetylene welding and cutting outfit with a welding capacity of 1/2" steel and cutting range of 1/8" to 1 1/2" steel. Compact design enables the torch to reach areas with minimum clearance. Light weight provides the "live" touch needed for fine quality welding. Valves located at front end of torch body for easy, one hand adjustment.

The three "Soft-Flame" welding tips provide a welding range up to 3/16". Cutting tip provided will cut up to 1/2" steel. Wide range of welding, cutting, heating and special purpose tips can be added to do a variety of jobs.

#### CONTENTS OF LITTLE BIG 98 OUTFITS (Oxygen and Acetylene)

Outfit No.	Torch Body	Welding Tips	Cutting Assembly	Cutting Tip	Regulators		Hose	Accessories	Shipping Weight
					Oxygen	Acetylene			
Little Big 98	AW1	AW203 AW205 AW207	AC309 90° Head	MC12-1	H713	H827	RA498	N113A lighter	12 1/2 lbs.
Little Big 98L			AC309 90° Head	MC12-1	H713	H827	None	N109B goggles	11 lbs.

### "SOFT FLAME" WELDING TIPS

#### WELDING TIP SPECIFICATION CHART

Drill Size	HEAVY DUTY For use in SW1 & SW2	MEDIUM DUTY For use in MW5 & PW1	LIGHT DUTY For use in AW1, AW5, AW6	Range Inches	Pressure Each Gas	Consumption c.f.h.
78			AW2000			.65
76			AW200	Up	3 p.s.i.	1.3
75			AW20	to		1.7
71	SW201	MW201	AW201	1/32		2.3
69	SW202	MW202	AW202	Up	5 p.s.i.	3.0
67	SW203	MW203	AW203	to		3.2
63	SW204	MW204	AW204	3/32		4.3
57	SW205	MW205	AW205	1/8	8 p.s.i.	6.0
56	SW206	MW206	AW206	5/32		9.0
54	SW207	MW207	AW207	3/16		12.0
52	SW208	MW208	AW208	1/4	11 p.s.i.	17.0
49	SW209	MW209	AW209	3/8		23.0
44	SW210	MW210	AW210	1/2		36.0
40	SW211	MW211		5/8	11 p.s.i.	49.0
34	SW212	MW212		3/4-7/8		66.0
30	SW213			1" and		90.0
26	SW214			over		121.0

Heat is concentrated for easier "puddle" control and uniform penetration. Non-turbulent flame protects molten metal from atmospheric oxidation. Each tip has individual mixing section for proper gas proportions and greatest flame efficiency. Two "O" type seal rings on mixing section keep gases separated until point of mixing is reached. Copper bent sections and mixing sections may be ordered separately by using tip number followed by "C" for copper or "B" for mixing section.

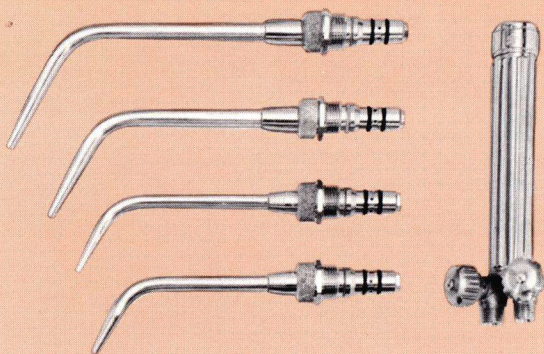


# TORCH SETS

## (Heavy Duty)



NWSA 210



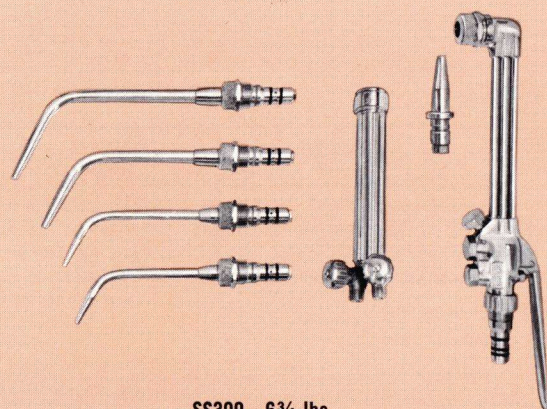
SS120—4 lbs.

The Welding Torch Set is a torch body with four welding tips. A Combination Set also includes a cutting assembly and one cutting tip. It is the basic unit around which an outfit is built. The components of the set determine the range of the outfit, i.e. Silver-Star for heavy duty, Pipeliner for medium duty and Airline for light duty.

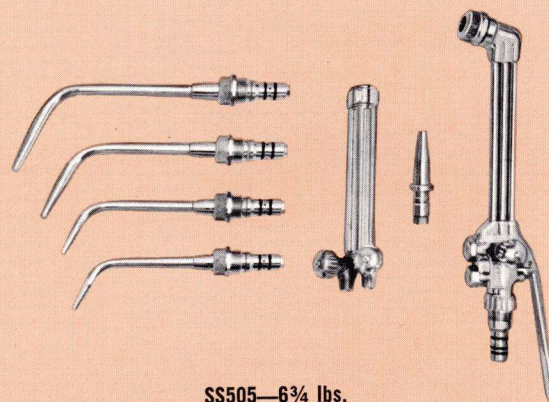
### SILVER STAR SET—FOR HEAVY DUTY

#### SS120 WELDING SET

This is the basic welding torch set that is universal in all of the torch sets on this page. It contains a No. SW1 torch body and one each welding tips Nos. SW203, SW205, SW207, and SW209. Welding range  $\frac{1}{8}$ " to  $\frac{3}{8}$ ". If SW2 body is desired, order No. SS120-2.



SS309—6 $\frac{3}{4}$  lbs.



SS505—6 $\frac{3}{4}$  lbs.

### CONTENTS OF SILVER-STAR TORCH SETS

Set No.	Torch Body	Cutting Assembly	Cutting Tip	Welding Tips all sets have:	Shipping Weight
SS120	SW1	None	None	SW203, SW205, SW207, SW209	4 lbs.
SS305	SW1	SC205 (75°)	SC12-1	SW203, SW205, SW207, SW209	6 $\frac{3}{4}$ lbs.
SS309	SW1	SC209 (90°)	SC12-1	SW203, SW205, SW207, SW209	6 $\frac{3}{4}$ lbs.
SS505	SW1	SC505 (75°)	SC12-1	SW203, SW205, SW207, SW209	6 $\frac{3}{4}$ lbs.
SS509	SW1	SC509 (90°)	SC12-1	SW203, SW205, SW207, SW209	6 $\frac{3}{4}$ lbs.

If you prefer the SW2 Torch Body in any of these sets, order by these numbers: SS120-2, SS305-2, SS505-2, etc.

### FEATURES OF SILVER-STAR TORCH SETS

- Slip-in welding and cutting tips—no wrench needed.
- Seal rings on welding tip mixing sections and cutting assembly back end keep gases separated prior to mixing point.
- Cutting assembly has exclusive FLO-TROL check valve in butt. Guards against damage caused by accidental reverse of gas.
- Acetylene or propane fuel gases may be used for cutting or heating simply by changing tips.
- "Soft Flame" welding tips make for easier welding or brazing.
- Ball type needle valves used on torch bodies for smooth action and positive seating.
- Listed under Underwriter's Laboratories Label Service.

OUTFITS



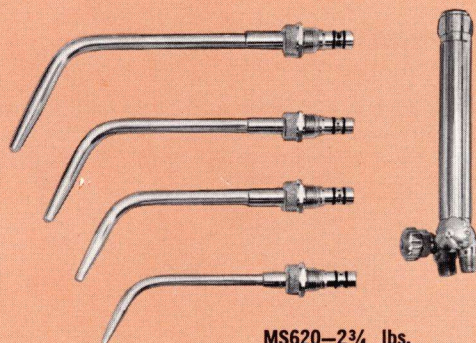
## TORCH SETS (Medium and Light Duty)

### PIPELINER TORCH SETS (MEDIUM DUTY)

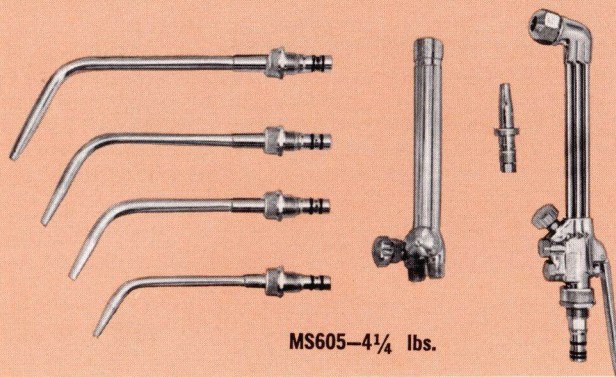
Torch body has precision machined solid brass head, pressure forged butt and fluted, "EASY-GRIP" handle. Ball type needle valves assure leak proof control.

Cutting Assemblies slip into torch body and are hand tightened for gas tight seal. PIPELINER cutting assemblies use MC12 series cutting tips and special purpose tips.

PIPELINER Torch Sets and Outfits for welding or cutting feature SMITH'S Slip-in cutting and welding tips. Torch bodies use MW200 and PW300 series welding tips and special purpose and heating tips. Welding tips slip into torch body and hand tighten for gas-tight seals. NO WRENCH NEEDED. Welds up to 7/8" steel with largest size tip. Medium Pressure.



MS620—2¾ lbs.



MS605—4¼ lbs.

### CONTENTS OF PIPELINER TORCH SETS

Set No.	Torch Body	Welding Tips	Cutting Assembly	Cutting Tip	Shipping Weight
MS620	MW5	all sets have: MW204, MW206 MW208 and MW210	None	None	2¾ lbs.
MS605	MW5		MC505 (75°)	MC12-1	4¼ lbs.
MS609	MW5		MC509 (90°)	MC12-1	4¼ lbs.

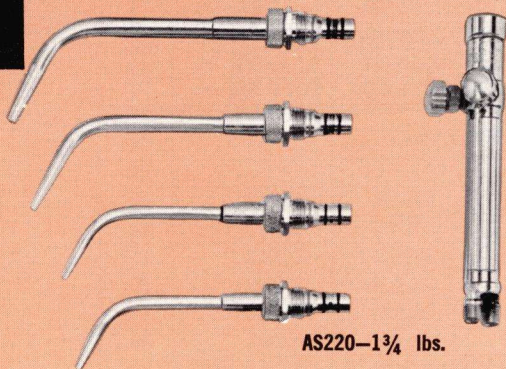
To increase the cutting capacity of Pipeliner Torch sets, the Pipewelders' Special Cutting Assembly may be added at any time.

### AIRLINE TORCH SETS (LIGHT DUTY)

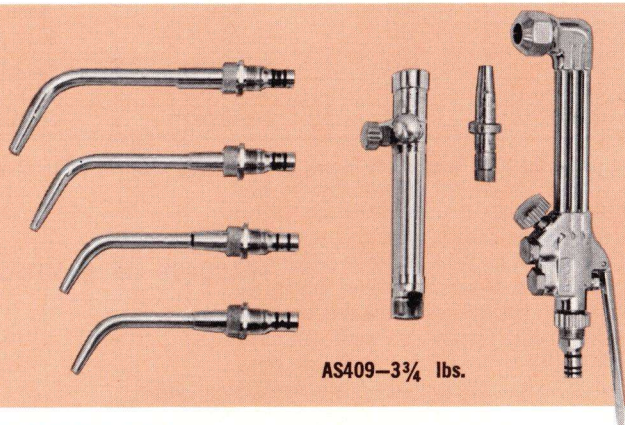
Light weight and wide range of usefulness contribute to the popularity of this torch. The welding range is from lightest gauge metal up to steel 1/2" thick. "300 series" Airline cutting assembly will cut from 1/16" to 1½" steel using MC12 series tips up to size 2

(MC12-2). A variety of special purpose tips are available as are a rosebud heating tip and Multi-tip mixers—all designed to give this torch unusually broad scope within small and convenient size.

OUTFITS



AS220—1¾ lbs.



AS409—3¾ lbs.

### CONTENTS OF AIRLINE TORCH SETS

Set No.	Torch Body	Welding Tips	Cutting Assembly	Cutting Tip	Shipping Weight
AS220	AW1	All sets have: AW201, AW203 AW205, AW207	None	None	1¾ lbs.
AS405	AW1		AC305 (75°)	MC12-1	3¾ lbs.
AS409	AW1		AC309 (90°)	MC12-1	3¾ lbs.



THE

# "Little Torch"



NWSA 210

**IDEAL FOR LABORATORIES, RESEARCH AND DEVELOPMENT, ELECTRONIC PRODUCTION AND REPAIR, DENTAL LABS, JEWELRY MAKING AND MINIATURE MACHINERY.**

The Little Torch is a precision engineered, highly versatile instrument capable of doing seeming impossible tasks with ease. It can use four different kinds of fuels — acetylene, hydrogen, LP-Gas or natural gas.

Five tip sizes are provided with each kit, set or outfit to cover a welding range of material from 16 gauge steel ( $\frac{1}{16}$ "") to tiny filaments of 1 mil (.001") and smaller. Tips are bent 45° and swivel 360° for flexibility in maneuvering and convenient positioning. When using LP-Gas as a fuel gas only the three largest tips can be used. Only the two largest tips can be used when the fuel is natural gas. All five tips can be used with acetylene or hydrogen.

The Little Torch body weighs only 1½ oz. The copper tips are swaged from copper and the three smallest sizes feature synthetic sapphire orifices. The Little Torch provides flame temperatures up to 6300° F. (with acetylene and oxygen) for precision welding, brazing, soldering or heating.

And it's safe to use. The Little Torch is covered under the Underwriters' Laboratories, Inc. label service.

For optimum performance, use of the Instrument Division regulators listed on page 50 is recommended. These regulators are designed to achieve a high degree of sensitivity at low pressure and low flow. Use of other regulators can possibly result in flame instability or poor flame adjustment.

## KITS 23-1001 AND 23-1001-A

The basic Little Torch kit includes the light weight torch body, 5 copper tips, 6 feet of durable MYLON hose and complete instructions for lighting and flame adjustment. Can be used with acetylene, LP-Gas or hydrogen. Valves, connections and hoses are all color-keyed for convenience and safety. The 23-1001-A kit is identical to above but also includes adaptors to fit standard regulator outlet connections.

## SET 23-1003

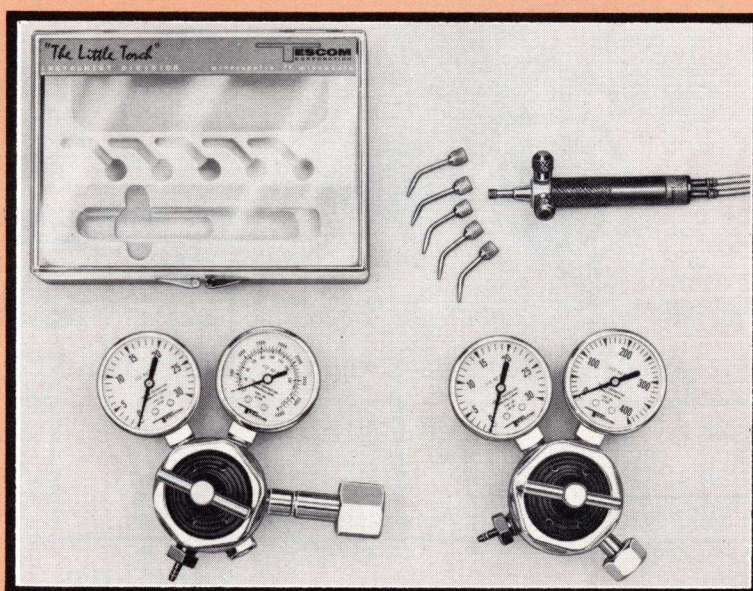
Consists of basic kit 23-1001 plus H743 oxygen regulator and H745-MC acetylene regulator. The H743 oxygen regulator fits standard oxygen cylinder valve CGA540. The H745-MC acetylene regulator fits the MC acetylene cylinder with CGA200 valve. Kits are available to fit other fuel gas cylinders. Refer to page 50 and specify kit with fuel gas regulator (H745-B, C, H or P) desired.

## OUTFIT 23-1004

A complete self-contained portable outfit — highly mobile and easy to handle — weighs only 30 lbs. Consists of the basic kit, plus 2 regulators, carrying case plus oxygen and acetylene cylinders. Each cylinder contains 10 cubic feet of gas. (Hours of operation: No. 1 tip — 435 hours; No. 2 tip — 110 hours; No. 3 tip — 47 hours; No. 4 tip — 6 hours; No. 5 tip — 4 hours). 23-1004-H. Same as above but supplied with hydrogen cylinder and regulator.



**KIT 23-1001**  
Shipping weight 12 oz.



**SET 23-1003**  
Shipping weight 7¾ lbs.

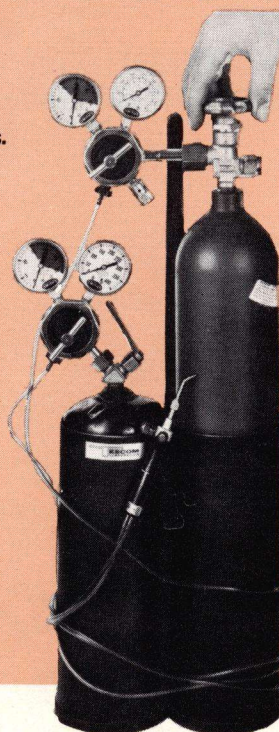
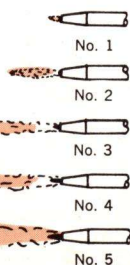
**OUTFIT 23-1004**  
Shipping weight 39 lbs.

OUTFITS

## TIP DATA AND FLAME CHARACTERISTIC CHART

TIP SIZE	ORIFICE SIZE	Gas Pressures (P.S.I.)		CONSUMPTION C.F.H. Each Gas
		Oxygen	Fuel Gas	
1	.003	2	2	.023
2	.006	3	3	.087
3	.011	3	3	.215
4	.020	3	3	1.625
5	.029	4	4	2.540

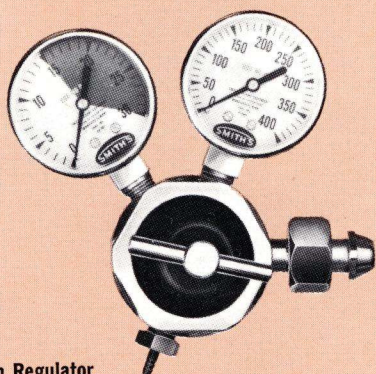
Flame drawings are symbolic representations of neutral settings for each tip. Obviously each tip has a variety of settings for particular needs.



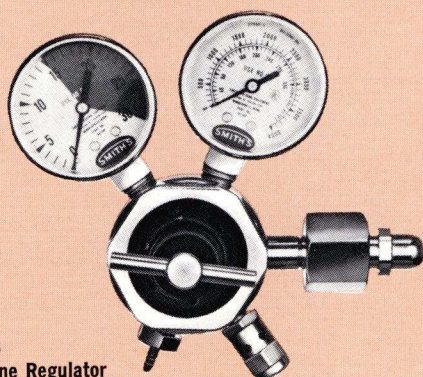




# LITTLE TORCH EQUIPMENT



H743  
Oxygen Regulator



H745-B  
Acetylene Regulator

## REGULATORS Specifically Designed for THE LITTLE TORCH

A complete line of eight precision regulators — each specially engineered to fulfill every requirement for perfect Little Torch operation. All provide the low volume gas flow and pressure sensitivity demanded by the extremely small orifices in Little Torch tips... provide optimum flame adjustment and stability. Outlet gauges are calibrated in one pound increments for accurate and easy-to-read pressure settings. Durably constructed, nickel plated, ideally suited for use in any Little Torch application.

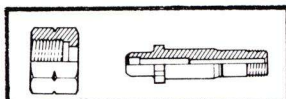
### CYLINDER REGULATORS

Stock Number	Gas	Delivery Range	Inlet Connection	Outlet Connection	Gauges	
					Outlet	Inlet
H743	Oxygen	0-10 PSI	CGA540	2133	H67NP 30 PSI	H71NP 4000 PSI
H745-B	Acetylene	0-10 PSI	CGA520	2132		H70NP 400 PSI
H745-C	Acetylene	0-10 PSI	CGA300	2132		H71NP 4000 PSI
H745-H	Hydrogen	0-10 PSI	CGA350	2132		H70NP 400 PSI
H745-MC	Acetylene	0-10 PSI	CGA200	2132		
H745-P	LP-Gas or Acetylene	0-10 PSI	CGA510	2132		

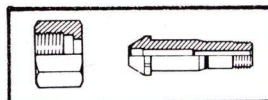
Average shipping weight of regulators is 3 lbs. 4 ounces.

### LINE REGULATORS

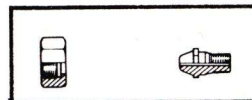
Stock Number	Gas	Delivery Range	Maximum Inlet Press.	Inlet Connection	Outlet Connection	Outlet Gauge
H747	Oxygen	0-10 PSI	300 PSI	1/4" NPT female	2133	H67NP
H749	Fuel Gas	0-10 PSI	300 PSI		2132	30 PSI



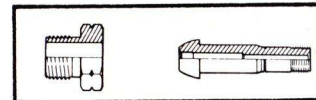
H745-H Hydrogen inlet



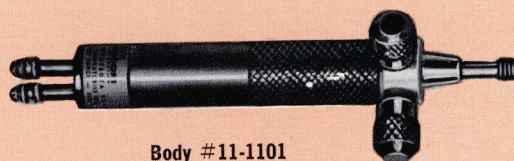
H745-C Acetylene inlet



H745-MC Acetylene inlet



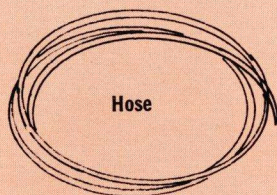
H745-P LP-Gas or Acetylene inlet



Body #11-1101



12-1401 Series Tips



Hose



Outlet Connection Adaptors

### Body #11-1101.

Light weight torch body (1 1/2 oz.) for miniature welding, soldering, brazing and heating. Use with tips listed below.

### TIPS — 12-1401 Series.

Provide needle point flame and 6300° F. temperature with oxygen and acetylene. Can also be used with hydrogen (all five sizes), LP-Gas (sizes 3, 4 & 5) and natural gas (sizes 4 & 5).

Stock No.	Orifice Size	Gas Pressures (P.S.I.)		Consumption C.F.H. ea. gas
		Oxygen	Fuel Gas	
12-1401-01	.003	2	2	.023
12-1401-02	.006	3	3	.087
12-1401-03	.011	3	3	.215
12-1401-04	.020	3	3	1.625
12-1401-05	.029	4	4	2.540

### HOSE.

Flexible 1/8" I.D. MYLON hose for use with the LITTLE TORCH. Color coded for identification: red fuel gas hose, green oxygen hose.

- #1883 Fuel gas hose (red), 6 feet long
- #1884 Oxygen hose (green), 6 feet long
- #2105 Fuel gas hose (red), any length, please specify
- #2106 Oxygen hose (green), any length, please specify

### ADAPTORS.

Adapt hose above to standard 9/16"-18 regulator outlet connections of non-Instrument regulators.

- #1885 Fuel gas outlet connection adaptor, 9/16-18 L.H. thread
- #1886 Oxygen gas outlet connection adaptor, 9/16-18 R.H. thread



# GAS-AIR EQUIPMENT "Handi-Heat"

## OUTFITS AND KITS



FOR: Soldering, Brazing, Heating, Melting, Tiling, Thawing, Leading, Straightening

NWSA 240

HANDI-HEET torch outfits and kits provide fast, concentrated flame (max. temperatures 4800° with acetylene and 3850° with LP-Gases) for soldering and heating jobs. NO OXYGEN TANK NEEDED . . . tip design automatically provides the right mixture of atmospheric air and fuel gas.

Tips are SMITH'S famous Slip-In tips that seat perfectly by hand . . . no wrench needed. "O" rings form gas-tight seal between tip mixing section and torch body . . . permit operator to rotate tip to any convenient position without extinguishing flame. All tips are nickle-plated to give added heat reflectivity. Rugged construction for longer useful life.

Unbreakable torch body . . . machined from solid brass. Trouble-free needle valve for positive flame control. Easy to operate . . . hold torch and set flame with one hand.

PRE-SET Fuel Gas Regulators in each kit or outfit. No adjusting necessary . . . regulator set at factory to provide correct pressure and volume for tips.

Complete line of accessories available—see following three pages.

### ACETYLENE-AIR OUTFITS AND KITS

NE825  
NE826  
NE827  
NE828  
(with 6 ft.  
hose)



NE825A  
NE826A  
NE827A  
NE828A  
(with 12½ ft.  
hose)



NE825B  
NE826B  
NE827B  
NE828B  
(With 10'  
Hose)

Outfit No.	Torch Body	TIPS			Regulator fits tanks	Hose Number and length	Lighter	Metal Case	Shipping Weight
		Small Size	Medium	Large					
NE825	NE180	NE180-1	NE180-2	NE180-3	"B" & Auto-lite	RL111 6 ft.	N113A	NE800	4¼ lbs.
NE826	NE180	NE180-1	NE180-2	NE180-3	Commercial	RL111 6 ft.	N113A	NE800	4¼ lbs.
NE827	NE180	NE180-1	NE180-2	NE180-3	"P.O.L."	RL111 6 ft.	N113A	NE800	4¼ lbs.
NE828	NE180	NE180-1	NE180-2	NE180-3	"M.C."	RL111 6 ft.	N113A	NE800	4¼ lbs.
NE825A	NE180	NE180-1	NE180-2	NE180-3	"B" & Auto-lite	RL121 12½ ft.	N113A	NE800	5 lbs.
NE826A	NE180	NE180-1	NE180-2	NE180-3	Commercial	RL121 12½ ft.	N113A	NE800	5 lbs.
NE827A	NE180	NE180-1	NE180-2	NE180-3	"P.O.L."	RL121 12½ ft.	N113A	NE800	5 lbs.
NE828A	NE180	NE180-1	NE180-2	NE180-3	"M.C."	RL121 12½ ft.	N113A	NE800	5 lbs.
NE825B	NE180		NE180-2		"B" & Auto-lite	RL398 10 ft.	N113A		3¼ lbs.
NE826B	NE180		NE180-2		Commercial	RL398 10 ft.	N113A		3¼ lbs.
NE827B	NE180		NE180-2		"P.O.L."	RL398 10 ft.	N113A		3¼ lbs.
NE828B	NE180		NE180-2		"M.C."	RL398 10 ft.	N113A		3¼ lbs.
NE827C	NE180	NE180-1 & Fine Size, NE180-0			"P.O.L."	RL121 12½ ft.			3¼ lbs.

### LP-GAS-AIR OUTFITS AND KITS

NE927



NE927A



Outfit No.	Torch Body	TIPS			Regulator	Hose Number and length	Lighter	Metal Case	Shipping Weight
		Fine	Small	Large					
NE927*	NE180	NE182-11	NE182-21	NE182-41	H827 P.O.L.	RL121 12½ ft.	N113A	NE900	6 lbs.
NE927A	NE180			NE182-41	H827A P.O.L.	RL398 10 ft.	N113A		3½ lbs.
NE927C	NE180	NE182-11 and Extra Fine Size tip NE182-01			H827A P.O.L.	RL121 12 ft.			3½ lbs.

\*Tip Holder, NE181-1, also included in outfit.

GAS-AIR EQUIPMENT





NWSA 240

# GAS-AIR TIPS (Acetylene) for "Handi-Heat" Torches

(4800°F Temperature)

Burn acetylene with atmospheric air

Ideal for: soldering, leading, thawing, brazing, softening, melting, heating, straightening

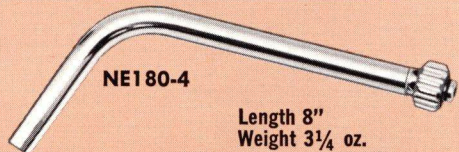
NE180



Length 5 $\frac{3}{8}$ "  
Weight 8 $\frac{1}{4}$  oz.

NE180 TORCH BODY. Built to last a life-time. Machined from solid brass. IAA hose connection "A"  $\frac{9}{16}$ "-18 L. H. Thread, fits R12 or R14D hose connections.

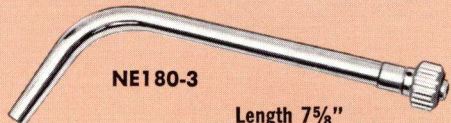
NE180-4



Length 8"  
Weight 3 $\frac{1}{4}$  oz.

NE180-4 Tip, Giant Size tip for fast paint burning, heavy soldering and heating.  $\frac{3}{8}$ " flame opening. Flame cone 1 $\frac{3}{4}$ " long. Acetylene consumption 22.8 cfh.

NE180-3



Length 7 $\frac{7}{8}$ "  
Weight 3 $\frac{1}{2}$  oz.

NE180-3 Tip, Large Size for pipe thawing, light brazing and silver soldering.  $\frac{1}{4}$ " flame opening. Flame cone 1 $\frac{1}{2}$ " long. Acetylene consumption 9.0 cfh.

NE180-2



Length 6 $\frac{7}{8}$ "  
Weight 2 $\frac{1}{2}$  oz.

NE180-2 Tip, Medium Size for all types of soft soldering, body leading, etc. No. 13 drill size flame opening. Flame cone 1 $\frac{1}{4}$ " long. Acetylene consumption 5.2 cfh.

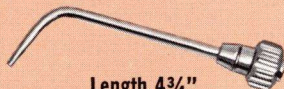
NE180-1



Length 6 $\frac{1}{8}$ "  
Weight 1 $\frac{7}{8}$  oz.

NE180-1 Tip, Small Size for fine instrument work, auto radiators, etc. No. 26 drill size flame opening. Flame cone  $\frac{3}{4}$ " long. Acetylene consumption 2.8 cfh.

NE180-0



Length 4 $\frac{3}{4}$ "  
Weight 1 $\frac{3}{4}$  oz.

NE180-0 Tip, Fine Size for jewelry soldering. Acetylene consumption 1.5 cfh.

NE180-00

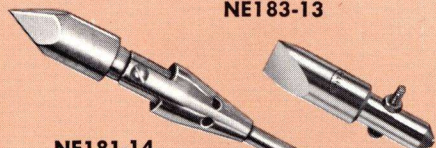


Length 4 $\frac{3}{4}$ "  
Weight 1 $\frac{3}{4}$  oz.

NE180-00 Tip, Super Fine size for delicate jewelry work. Acetylene consumption .5 cfh.

GAS-AIR  
EQUIPMENT

NE183-13



NE181-14

Length 8 $\frac{7}{8}$ "  
Weight 10 $\frac{1}{2}$  oz.

NE181-14 SOLDERING IRON with Diamond Point bit. Acetylene consumption 1.5 cfh.

NE181-12 SOLDERING IRON with Chisel Point bit.

NE183-11 Diamond Point bit only.

NE183-13 Chisel Point bit only.

NE181-16



Length 8 $\frac{3}{4}$ "  
Weight 6 $\frac{3}{8}$  oz.

NE181-16 Paint Burner. Has adjustable swivel head. Acetylene consumption 9.0 cfh.

• NO OXYGEN TANK NEEDED

• FAST, ECONOMICAL HEAT

• NO WRENCH NEEDED Tips are hand-tightened.

• ONE HAND FLAME ADJUSTMENT

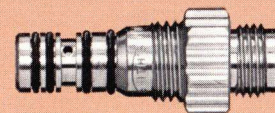
• 360° TIP TURNING RADIUS Can turn tip without extinguishing flame.

• ALL BRASS BODY

• TROUBLE-FREE NEEDLE VALVE

• RUGGED TIPS

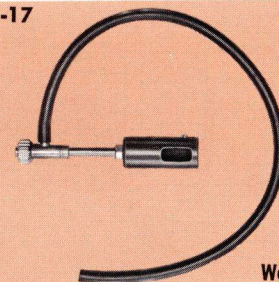
• NICKLE PLATED FOR ADDED HEAT RESISTANCE



WELDING TORCH ADAPTOR. Use Handi-Heat tips in AIRLINE, PIPELINER or SILVER STAR torch bodies.

ADAPTOR	FITS TORCH BODY	Weight
SW60	SW1, SW2	4 $\frac{3}{4}$ oz.
MW60	MW5, PW1	2 $\frac{1}{4}$ oz.
AW60	AW1	1 $\frac{3}{4}$ oz.

NE181-17



Weight 8 oz.

NE181-17 HALIDE LEAK DETECTOR For detecting leaks in refrigerators, air conditioners and other units using halide gas. Simple to operate. Flame color changes to indicate leak. Can detect concentrations of gas as low as 15 parts per million parts of air (or a leak of 5 oz. per year!) NE181-17P Replacement Reactor Plate.



# GAS-AIR TIPS (L-P Gas)

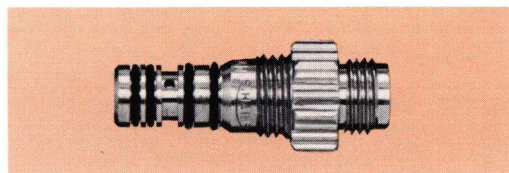
## For "Handi-Heat" Torches



NWSA 240

Burns LP-Gas (propane, butane, etc.) with atmospheric air (3800° F Temperature). Ideal for sweating copper joints up to 6" diameter; soldering - leading - thawing - heating - straightening.

- NO OXYGEN TANK NEEDED
- CLEAN, ECONOMICAL HEAT
- NO WRENCH NEEDED. Tips are hand tightened.
- ONE-HAND FLAME ADJUSTMENT
- 360° TIP TURNING RADIUS. Can turn tip without extinguishing flame.
- ALL BRASS BODY
- TROUBLE-FREE NEEDLE VALVE
- RUGGED TIPS
- NICKEL PLATED FOR ADDED HEAT RESISTANCE

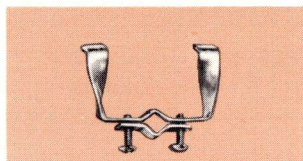


### WELDING TORCH ADAPTOR

Use Handi-Heat tips in AIRLINE, PIPELINER, or SILVER STAR torch bodies.

### ADAPTORS

ADAPTOR	Fits Torch Body	Weight
SW60	SW1, SW2	4¾ oz.
MW60	MW5, PW1	2¼ oz.
AW60	AW1	1¾ oz.



### NE181-1 TIP STAND

Attaches to any Handi-Heat tip. Permits operator to rest hot or lighted tip on any flat surface . . . or hang torch from any convenient object.



Weight 7¾ oz.

### NE183-17 HALIDE LEAK DETECTOR

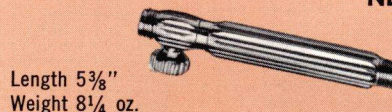
For detecting leaks in refrigerators, air conditioners and other units using halide gas. Simple to operate. Flame color changes to indicate leak. Can detect concentrations of gas as low as 15 parts per million parts of air (or a leak of 5 oz. per year!)

### NE181-17P Replacement Reactor Plate.

Values given for flame cone lengths and gas consumption are approximate.

### NE180 TORCH BODY

Use with LP-Gas or acetylene. Machined from solid brass. IAA hose connection "A" 9/16"-18 L.H. thread, fits R12 or R14D hose connections.

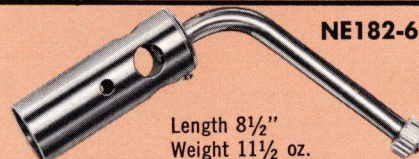


NE180

Length 5⅜"  
Weight 8¼ oz.

### NE182-61 GIANT SIZE TIP

Recommended for sweat fittings up to 6" diameter. Flame opening 1.375"; flame cone 2⅞" long; LP-gas consumption 25.3 c.f.h. 64,000 B.t.u.



NE182-61

Length 8½"  
Weight 11½ oz.

### NE182-51 EXTRA LARGE SIZE TIP

Recommended for sweat fittings up to 4" diameter. Flame opening 1.125"; flame cone 2½" long; LP-gas consumption 16.5 c.f.h. 41,745 B.t.u.

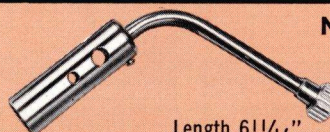


NE182-51

Length 8⅜"  
Weight 9 oz.

### NE182-41 LARGE SIZE TIP

Recommended for sweat fittings up to 2" diameter. Flame opening .875"; flame cone 2" long; LP-gas consumption 8.8 c.f.h. 22,265 B.t.u.

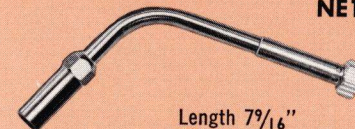


NE182-41

Length 6⅞"  
Weight 5½ oz.

### NE182-31 MEDIUM SIZE TIP

Recommended for sweat fittings up to 1½" diameter. Flame opening .563"; flame cone 1¾" long; LP-gas consumption 7.1 c.f.h. 17,965 B.t.u.



NE182-31

Length 7⅞"  
Weight 4¾ oz.

### NE182-21 SMALL SIZE TIP

Recommended for sweat fittings up to 1" diameter. Flame opening .5"; flame cone 1⅞" long; LP-Gas consumption 4.1 c.f.h. 10,375 B.t.u.



NE182-21

Length 6⅝"  
Weight 3¾ oz.

### NE182-11 FINE SIZE TIP

Recommended for sweat fittings up to ½" diameter. Flame openings .437"; flame cone 1⅞" long; LP-gas consumption 2.2 c.f.h. 5,565 B.t.u.



NE182-11

Length 5⅞"  
Weight 3⅞ oz.

### NE182-01 EXTRA FINE SIZE TIP

Needle point flame for fine soldering and jewelry work. Flame opening .373"; flame cone 1⅞" long; LP-gas consumption .84 c.f.h. 2,125 B.t.u.



NE182-01

Length 5¼"  
Weight 2½ oz.

### NE183-14 SOLDERING IRON

With diamond point bit. LP-gas consumption, 1.1 c.f.h. 2,785 B.t.u.

### NE183-12 SOLDERING IRON

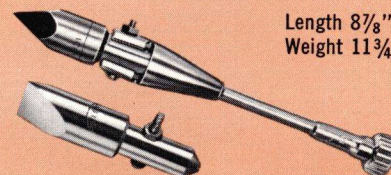
With chisel point bit.

### NE183-11 SOLDERING IRON

Diamond point bit only.

### NE183-13 SOLDERING IRON

Chisel point bit only.



NE183-14

Length 8⅞"  
Weight 11¾"

NE183-13

### NE183-16 PAINT BURNER

Flame opening 1⅞" by 1⅞" wide; LP-gas consumption 8.8 c.f.h. 22,265 B.t.u.



NE183-16

Length 6⅞"  
Weight 5½ oz.

GAS-AIR EQUIPMENT





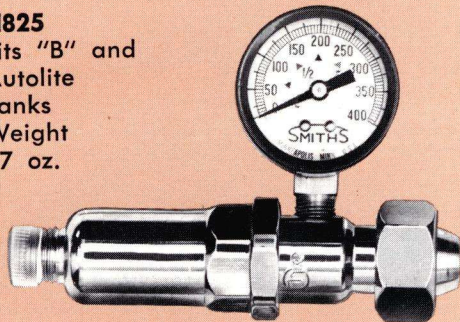
# REGULATORS AND ACCESSORIES

## for "Handi-Heat" Equipment

NWSA 240

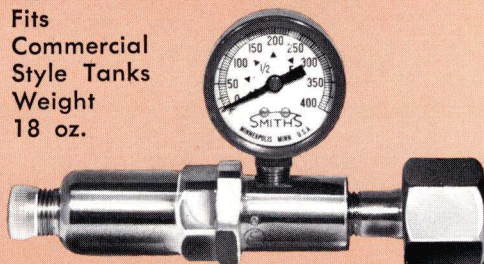
### H825

Fits "B" and Autolite Tanks  
Weight  
17 oz.



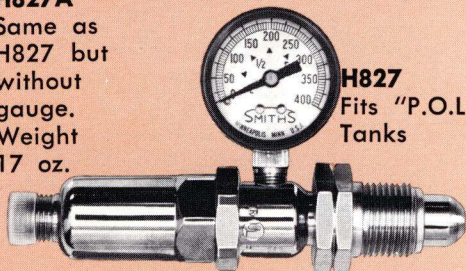
### H826

Fits Commercial Style Tanks  
Weight  
18 oz.



### H827A

Same as H827 but without gauge.  
Weight  
17 oz.

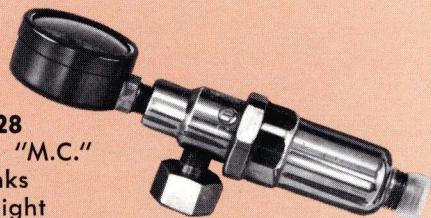


### H827

Fits "P.O.L." Tanks

### H828

Fits "M.C." Tanks  
Weight  
14 oz.

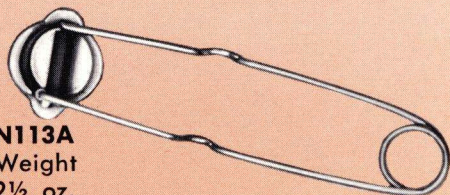


### H845

Weight  
3 1/4 oz.



**N113A**  
Weight  
2 1/2 oz.



## SMITH'S PRE-SET FUEL GAS REGULATORS

The most fool-proof regulator you can use. No need to adjust regulator pressure. PRE-SET regulator automatically reduces tank pressure to an outlet pressure of 12-15 PSI . . . adjusting needle valve on torch assures correct volume of gas for each tip.

Compact design is made possible by a unique bellows in place of the diaphragm usually found in gas pressure regulators. All regulators have 9/16"-18 L.H. outlet thread (IAA "B" connection).

### LOOK AT THESE QUALITY FEATURES:

- Pre-set delivery pressure—12 to 15 PSI.
- No diaphragm needed—unique design minimizes number of parts.
- Long-wearing seat—practically indestructible teflon seat.
- Inlet filter keeps out dirt.
- Non-corrosive materials used throughout—machined from solid brass.

### ADAPTORS

Stock No.	H5	H6	H7	H63	H64	R23A
Adapts	H825	H828	H828	H825	H825	3/8"-24 L.H. Conn.
To Fit	"M.C." Tank	"P.O.L." Tank	"B" Tank	"P.O.L." Tank	Commercial Style Tank	9/16"-18 L.H. Conn.

### HOSE

Stock No.	Length	Inside Diameter	CONNECTIONS		Shipping Weight
			To Regulators	To Torch	
RL111	6 ft.	3/16"	R14D "B" 9/16"-18 L.H.	R14D "B" 9/16"-18 L.H.	3/4 lb.
RL121	12 1/2 ft.	3/16"			1 1/4 lbs.
RL398	10 ft.	3/16"			1 lb.

### H845 REGULATOR OUTLET NEEDLE VALVE ASSEMBLY

Permits operator to adjust or shut off fuel gas at the regulator without closing tank shut off valve.

### N113A TORCH LIGHTER

A dependable, low-priced single flint lighter. Large shield collects gas from tip, assures instant lighting.

N113-3 Extra Flints. Packed 6 to a box.

GAS-AIR EQUIPMENT



Stock No.	Description	Weight
N1	BRONZE WELDING AND BRAZING FLUX. Tins easily at low heat and forms a perfect bond.	1 lb.
N2	HIGH TEMPERATURE BRAZING FLUX. Makes an excellent bond even if too much heat is used.	1 lb.
N3	ALL-PURPOSE FLUX. For welding steel, malleable iron copper and brass with bronze rod. Makes an excellent bond even if too much heat is used.	1 lb.
N41	CAST IRON FLUX. Dissolves the slags and oxides present in castings and floats them to the surface of the puddle.	1 lb.
N45	CAST ALUMINUM FLUX. For welding cast aluminum with 5% silicon aluminum rod.	3/4 lb.
N49	CARBON PUTTY. Multi-purpose . . . back-up molds for retaining threads in bolt holes, lugs, and corners . . . line up small parts prior to welding. Just mix with water and mold to any shape.	5 lbs.
N63	SHEET ALUMINUM FLUX. For welding aluminum sheets or castings with a suitable aluminum rod. Brings impurities to surface for easy removal. Hot water removes excess flux.	1/4 lb.
N63A		1/2 lb.
N63B		1 lb.
N107	WELDING GOGGLES. Moderately priced goggles assure adequate protection for all welding and cutting. Adjustable ball chain nose bridge and elastic head band. Shipped with No. 6 medium shade Fed. Spec. lens unless otherwise specified.	5 oz.
N107A	Same as N107, but with commercial grade # 5 lens.	5 oz.
N109A	WELDING GOGGLES. Fits over all prescription glasses. Has leather nose piece and metal eye-cup bridge with elastic head band. Shipped with No. 6 medium shade Fed. Spec. lens unless otherwise specified.	5 1/4 oz.
N109B	WELDING GOGGLES. Same as N109A but with commercial grade # 5 lens.	5 1/4 oz.
N110	EYESHIELD. Fits over most prescription glasses. Uses 2"x4 1/8" colored and clear lens. For gas welding and cutting only. Shipped with No. 6 lens unless otherwise specified.	14 oz.
N112B	CHIPPING AND GRINDING GOGGLES. Fits over all prescription glasses. No. 08 flat 50MM cases hardened lens for impact protection.	5 1/2 oz.
N112-1	Lens only for N112B.	

## FEDERAL SPECIFICATION LENSES FOR N107, N107A, N109A AND N109B

N107-5	for light welding and cutting.
N107-6	for medium welding.
N107-8	for heavy welding.

## CLEAR COVER LENSES, 50MM FOR N107, N107A, N109A AND N109B

N107-1	Plain clear lenses.
N107-2G	50 mm. Glass Spatter-proof Clear Lenses.
N107-11	Elastic head band for N107, N109A, N112B (package of 4 head bands)

## LENS FOR N110 EYESHIELD

N110-5	Light shade, 2"x4 1/8"
N110-6	Medium shade, 2"x4 1/8"
N110-8	Dark shade, 2"x4 1/8"
N110-2	Sweat band and head cushion.



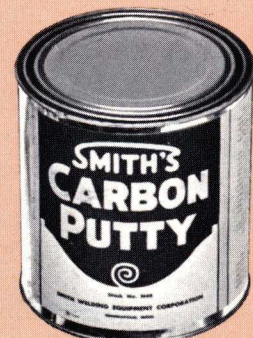
N3 A-MAL-GAM FLUX



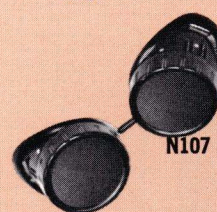
N45



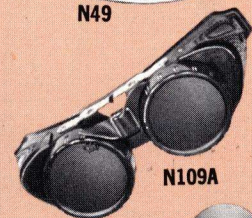
N63



N49



N107



N109A



Clear Cover Lenses



N110



N112B

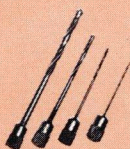


Replacement Lens





N230



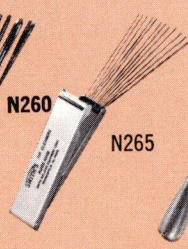
Drill Cleaners



N250



N260



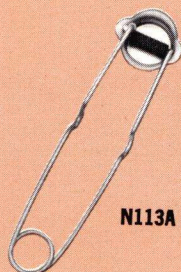
N265



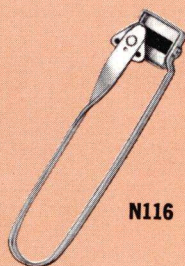
N270



Repair Kits



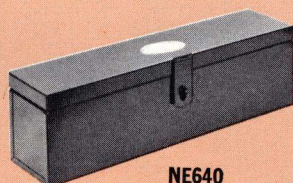
N113A



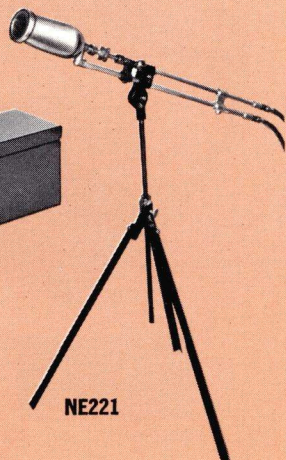
N116



NE616A



NE640



NE221

Stock No.	Description	Weights
N230	WRENCH. Sized for use with Silver Star, Pipeliner, Pipewelders' Special, Airline and Lite-O-Matic Torches and Tip Ends.	13 3/4 oz.
N250	TIP CLEANERS DRILL TYPE. Individual style. See cutting tip section and welding tip sections for drill sizes.	1 oz.
N260	STANDARD SET: 13 cleaners for drill size holes #75 to #49. Use with Silver Star, Pipeliner and Airline Tips.	1 oz.
N265	JUMBO SET. 9 cleaners for drill size holes #48 to #23. Use with large size cutting and welding tips.	1 1/2 oz.
N265	KING SIZE SET. Extra-long (4 1/4") tip cleaners will clean the entire length of practically any standard size cutting tip. Set consists of 12 cleaners for drill sizes 75 to 49.	1 1/2 oz.
	REPAIR KITS. Avoid many costly repair bills . . . make minor repairs to your SMITH'S equipment "on the job"—right in your own shop.	
SC100	For Silver Star Hand Cutting Torches.	1 1/2 oz.
SC101	For Silver Star Cutting Assemblies.	1 oz.
SC729-100	For Tuf Tony Cutting Torches.	1 1/2 oz.
PC101	For Pipewelders' Special Cutting Assemblies.	1 oz.
MC101	For Pipeliner Cutting Assemblies.	1 oz.
H100-100	For H100, H100C, H101J, H101P and H481 BB style regulators.	3 oz.
H102E-100	For H102E, H451A, and H452 BB style regulators.	3 oz.
H313-100	For H313, H313C, H315, H315P, H421 and H491 BB-2 style regulators.	3 oz.
H317-100	For H317A, H471A and H472 BB-2 style regulators.	3 oz.
H713-100	For H713 Econoflo Oxygen Regulator.	1 oz.
H715-100	For H715 and H715P and Econoflo Line Regulators.	
	TORCH LIGHTERS.	1 oz.
N113A	SINGLE FLINT LIGHTER. A dependable, low price lighter. Large shield collects gas from the tip and assures instant lighting.	2 1/2 oz.
N113-3	EXTRA FLINTS FOR N113A lighter above. Packed 6 flints to a box.	—
N116	THREE FLINT LIGHTER. Provides three times normal ignition. High quality, heavy duty lighter made of round edge, flat wire and zinc plated for protection against rust. Length 7 1/4".	4 1/4 oz.
N116-1	THREE FLINT RENEWALS for N116 lighter above. Easy to install.	—
N270	Wire brush for cleaning grooves of brass mixing sections of two-piece LP-Gas cutting tip.	
	CYLINDER TRUCKS	
	Hold cylinders upright—prevent them from tipping and smashing regulators. Strong all-welded steel construction. 10 1/2"x22 1/4" platform holds largest cylinders: chains keep them secure.	
NE616A	Cylinder truck with 12" semi-pneumatic tired wheels — without tool box.	41 lbs.
NE617A	Cylinder truck with 12" semi-pneumatic tired wheels — with tool box.	51 lbs.
	PREHEATING TORCH. Designed to produce large volume heat at low cost for preheating heavy castings, cylinder heads and blocks. Uses compressed air and produces a hot flame which may be varied from a few inches in length to several feet. Burns kerosene, distillate, or propane. Made in two sizes for varying heat requirements. Torch No. NE201 is recommended for average preheating in garage work.	
NE201	Preheating torch for average heating.	7 1/4 lbs.
NE211	Preheating torch NE201 with hose, less stand.	9 3/4 lbs.
NE221	Preheating torch NE201 with hose and stand.	16 3/4 lbs.
NE202	Preheating torch only for heavy heating.	10 lbs.
NE212	Preheating torch NE202 with hose, less stand.	12 1/2 lbs.
NE222	Preheating torch NE202 with hose and stand.	19 1/2 lbs.
NE213	6 ft. length special oil hose with connection.	1/2 lb.
NE214	12 1/2 ft. length 1/4" air hose with 2 connections.	1 1/2 lbs.
NE215	Adjustable stand for all preheating torches.	7 lbs.
	Petroleum by-product gases (natural or bottle gas) may also be used as fuel in place of oil or kerosene. Gas must be supplied at 15 lbs. pressure with air pressure at minimum of 80 lbs.	

### AIR PRESSURE AND CONSUMPTION TABLE

Torch No.	Cons. CFH	Pressure PSI	Compressor Size
NE201	70-120	30-70	3 1/2"x3" 3/4 Horse
NE202	135-280	40-70	3 1/2"x3" 1 Horse



## TWO-IN-ONE HOSE Single Braid



Stock No.	Length	Weight (lbs.)	CONNECTIONS		FOR TORCHES
			To Regulators	To Torch	
RA911	6 ft.	1 3/4	R13D (Oxy) R14D (Fuel) 9/16"-18 thread (all "B")	R13 (Oxy)	Airline, AW2 & AW3 Lite-O-Matic, NE120 NE140 & NE150
RA921	12 1/2 ft.	2 1/2		R14 (Fuel)	
RA931	25 ft.	5		3/8"-24 ("A")	Pipeliner, Pipewelders' Special, AW5 & AW6 Lite-O-Matic
RL921	12 1/2 ft.	2 3/4		R13D (Oxy)	
RL931	25 ft.	5		R14D (Fuel)	
RL498	10 ft.	2		9/16"-18 ("B")	

## LEADER HOSE 2-in-1 Single Braid



Stock No.	Length	Weight (lbs.)	CONNECTIONS		FOR TORCHES
			To Hose	To Torch	
RL912	6 ft.	2 1/4	R20 (Oxy)	R13D (Oxy)	Pipeliner, Pipewelders' Special, AW5 & AW6 Lite-O-Matic
RL922	12 1/2 ft.	4 1/2	R21 (Fuel)	R14D (Fuel)	
			9/16"-18 thread (all "B")	9/16"-18 ("B")	

## TWO-IN-ONE HOSE Single Braid



Stock No.	Length	Weight (lbs.)	CONNECTIONS		FOR TORCHES
			To Regulators	To Torch	
RL1121	12 1/2 ft.	2 3/4	R11 (Oxy)	R11 (Oxy)	Silver Star, Tuf-Tony, and Machine Torches
RL1131	25 ft.	6 1/2	R12 (Fuel)	R12 (Fuel)	
RL1141	50 ft.	12 1/2	9/16"-18 thread ("B")	9/16"-18 thread ("B")	

OXYGEN HOSE — GREEN  
FUEL GAS HOSE — RED

## SINGLE LINE HOSE



Stock No.	Length	Gas	Connections		For Torches	Weight (lbs.)
			To Regulators	To Torch		
RL111	6 ft.	Fuel	R14D ("B")	R14D ("B")	NE180 HANDI- HEET BODY	3/4
RL121	12 1/2 ft.	Fuel	9/16"-18 LH	9/16"-18 LH		1 1/4
RL398	10 ft.	Fuel	R14D ("B")	R14D ("B")		1
			9/16"-18 LH	9/16"-18 LH		
RL531	25 ft.	Fuel	R12 ("B")	R12 ("B")	SILVER STAR PIPELINER, PIPEWELDERS' SPECIAL, TUF TONY & MACHINE TORCHES	4
RL631	25 ft.	Oxygen	9/16"-18 LH	9/16"-18 LH		4
			R11 ("B")	R11 ("B")		
			9/16"-18 RH	9/16"-18 RH		
RL541	50 ft.	Fuel	R12 ("B")	R12 ("B")	SILVER STAR, TUF TONY and MACHINE CUTTING TORCHES	8 1/4
RL641	50 ft.	Oxygen	9/16"-18 LH	9/16"-18 LH		8 1/4
			R11 ("B")	R11 ("B")		
			9/16"-18 RH	9/16"-18 RH		
RL1531	25 ft.	Fuel	R12A ("B")	R12A ("B")		4 1/2
RL1631	25 ft.	Oxygen	9/16"-18 LH	9/16"-18 LH		4 1/2
			R11A ("B")	R11A ("B")		
RL1541	50 ft.	Fuel	9/16"-18 RH	9/16"-18 RH		10
RL1641	50 ft.	Oxygen	R12A ("B")	R12A ("B")		10
			9/16"-18 LH	9/16"-18 LH		
RL1551	100 ft.	Fuel	R11A ("B")	R11A ("B")		15
RL1651	100 ft.	Oxygen	9/16"-18 RH	9/16"-18 RH		15
			R12A ("B")	R12A ("B")		
			9/16"-18 LH	9/16"-18 LH		
			R11A ("B")	R11A ("B")		
			9/16"-18 RH	9/16"-18 RH		



Letters "A" and "B" refer to (IAA) International Acetylene Association Standard Hose Connections.

ACCESSORIES



## EFFECT OF HOSE DIAMETER AND LENGTH ON FLOW AND PRESSURE AT TORCH

Hose Diameter	Hose Length	Cutting Tip Size	Reg. PSI Static	Reg. PSI Flowing	Inlet PSI Torch	PSI Drop In Hose	Flow CFH
3/16	50	3	50	47	37½	9½	169
3/16	100*	3	51	47	26	21	129
3/16	50	5	84½	78	44	34	370
3/16	100*	5	83½	78	22	56	215
3/16	50	7	108	100	24	76	510
3/16	100*	7	106½	100	9	91	270
3/16	50	9	138½	130	19½	110½	735
3/16	100*	9	136½	130	7	123	405
1/4	50	3	50½	47	44½	2½	194
1/4	100*	3	50	47	42½	4½	188
1/4	50	5	86	78	68½	9½	540
1/4	100*	5	85	78	58½	19½	470
1/4	50	7	114	100	68	32	1140
1/4	100*	7	110	100	49	51	870
1/4	50	9	149½	130	56½	73½	1110
1/4	100*	9	144	130	36½	93½	1290
1/4	100**	3	50	47	36	11	164
1/4	100**	5	84½	78	42	36	360
1/4	100**	7	108	100	25	75	560
1/4	100**	9	140	130	18	112	795
3/8	50	3	51	47	46	1	190
3/8	50	5	86	78	74½	3½	580
3/8	50	7	117	100	86	14	1400
3/8	50	9	163½	130	89½	40½	2700
3/8	100*	3	51	47	46	1	198
3/8	100*	5	86	78	72	6	570
3/8	100*	7	115	100	77	23	1280
3/8	100*	9	155	130	70½	49½	2100

\* — Two 50 ft. lengths of hose connected together with standard hose unions  
 \*\* — Four 25 ft. lengths of hose connected together with standard hose unions

Description	Inside	Outside	RMA-IAA		Burst PSI	Working PSI
			Type	Grade		
2 in 1, vulcanized, double line, single braid reinforcement .....	3/16"	7/16"	VD*	RM	1000	225
2 in 1, vulcanized, double line, single braid reinforcement .....	1/4"	17/32"	VD	This hose should have a non-oil resisting rubber tube and a flame and oil resisting rubber cover for use with all gases.	800	200
2 in 1, vulcanized, double line, single braid reinforcement .....	5/16"	19/32"	VD		800	200
2 in 1, vulcanized, double line, single braid reinforcement .....	3/8"	21/32"	VD		800	200

\*Type.VD — This hose shall consist of two hoses, single braid reinforcement, identical in construction, one for fuel, one for oxygen, connected along the sides so the two hoses are an integral unit. Oxygen line shall be green and fuel line red. Both covers to be smooth.



## HOSE CONNECTIONS (NUT AND TAILPIECE COMBINATION)



R11

R12

R13D

R14D

R13

R14

No.	Type	Tailpiece Type & No.	Nut Thread and Number	Hose Size—I.D.
R11	Oxygen	Barb—R7	9/16"—18 R.H. R2	1/4"
R11A	Oxygen	Barb—R6	9/16"—18 R.H. R2	3/8"
R13	Oxygen	Barb—R7A	3/8"—24 R.H. R2A	3/16"
R13D	Oxygen	Barb—R9	9/16"—18 R.H. R2	3/16"
R13E	Oxygen	Barb—R8A	3/8"—24 R.H. R2A	1/8"
R12	Fuel Gas	Barb—R7	9/16"—18 L.H. R3	1/4"
R12A	Fuel Gas	Barb—R6	9/16"—18 L.H. R3	3/8"
R14	Fuel Gas	Barb—R7A	3/8"—24 L.H. R3A	3/16"
R14D	Fuel Gas	Barb—R9	9/16"—18 L.H. R3	3/16"
R14E	Fuel Gas	Barb—R8A	3/8"—24 L.H. R3A	1/8"

## HOSE CONNECTION NUTS



R2



R3



R2A



R3A

No.	Type Gas	Thread	Use With Tailpieces
R2	Oxygen	9/16"—18 R.H.	R6, R7, R9
R2A	Oxygen	3/8"—24 R.H.	R7A, R8A
R3	Fuel Gas	9/16"—18 L.H.	R6, R7, R9
R3A	Fuel Gas	3/8"—24 L.H.	R7A, R8A

## HOSE CONNECTIONS TAILPIECES (NIPPLES)



R6



R7



R7A



R8A



R9

No.	Hose Size	Use With Hose Nuts
R6	3/8" I.D.	R2A, R3A
R7	1/4" I.D.	R2, R3
R7A	3/16" I.D.	R2, R3
R8A	1/8" I.D.	R2A, R3A
R9	3/16" I.D.	R2, R3

## HOSE SPLICERS (DOUBLE END BARB TYPE)



R15



R16



R16A

No.	Type	Hose Size—I.D.
R15	Barb	3/8"
R16	Barb	1/4" & 5/16"
R16A	Barb	3/16"

## HOSE UNIONS (THREADED TYPE)



R18



R19



R41



R42

No.	Use With Gas:	Thread, Each End
R18	Oxygen	9/16"—18 R.H.
R19	Fuel Gas	9/16"—18 L.H.
R41	Oxygen	3/8"—24 R.H.
R42	Fuel Gas	3/8"—24 L.H.



## LEADER HOSE CONNECTIONS (BARB & THREAD COMBINATION)



R20



R21

No.	Use With Gas	Thread	For Hose Size
R20	Oxygen	$\frac{1}{16}$ "—18 R.H.	$\frac{3}{16}$ " I.D.
R21	Fuel Gas	$\frac{1}{16}$ "—18 L.H.	$\frac{3}{16}$ " I.D.

## HOSE ADAPTORS



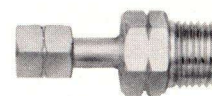
R22A



R23A



R29



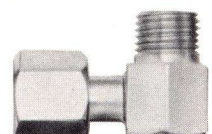
R30



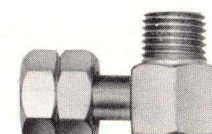
R131



R132



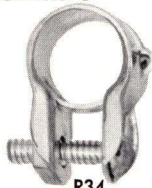
R150



R151

No.	Use With Gas:	Male End Thread	Female End Thread
R22A	Oxygen	$\frac{3}{8}$ "—24 R.H.	$\frac{1}{16}$ "—18 R.H.
R23A	Fuel Gas	$\frac{3}{8}$ "—24 L.H.	$\frac{1}{16}$ "—18 L.H.
R29	Oxygen	$\frac{1}{16}$ "—18 R.H.	$\frac{3}{8}$ "—24 R.H.
R30	Fuel Gas	$\frac{1}{16}$ "—18 L.H.	$\frac{3}{8}$ "—24 L.H.
R131	Oxygen	$\frac{1}{16}$ "—18 R.H. to $\frac{3}{8}$ "—24 R.H.	
R132	Fuel Gas	$\frac{1}{16}$ "—18 L.H. to $\frac{3}{8}$ "—24 L.H.	
R150 90° Angle	Oxygen	$\frac{1}{16}$ "—18 R.H.	$\frac{1}{16}$ "—18 R.H.
R151 90° Angle	Fuel Gas	$\frac{1}{16}$ "—18 L.H.	$\frac{1}{16}$ "—18 L.H.

## HOSE CLAMPS



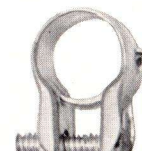
R34



R35



R36



R37

No.	Hose Size	Size No.
R34	$\frac{1}{4}$ " I.D.	$\frac{1}{4}$ "—4W
R35	$\frac{3}{16}$ " I.D.	$\frac{3}{16}$ "—3
R36	$\frac{1}{4}$ " and $\frac{5}{16}$ " I.D.	$\frac{3}{8}$ "—2W
R37	$\frac{3}{8}$ " I.D.	$\frac{3}{8}$ "—3W

## BRASS HOSE FERRULES



AA



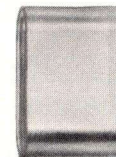
II



KK



625


1 Oval  
Brace

2 Oval  
Brace

No.	Inside Diameter	Length	Hose Type	Die No.
AA	$\frac{27}{32}$ "	$\frac{17}{32}$ "	$\frac{3}{8}$ " I.D. Single Line	—
II	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{1}{4}$ " 2-in-1 and Single	36
KK	$\frac{19}{32}$ "	$\frac{1}{2}$ "	$\frac{5}{16}$ "	38
625	$\frac{17}{32}$ "	$\frac{15}{32}$ "	$\frac{3}{16}$ " 2-in-1 and Single	40
769	$\frac{29}{64}$ "	$\frac{27}{64}$ "	$\frac{3}{16}$ " Single	—
1 Oval Brace	$\frac{1}{2}$ "	$\frac{23}{32}$ "	$\frac{3}{16}$ " 2-in-1	—
2 Oval Brace	$\frac{17}{32}$ "	$\frac{23}{32}$ "	$\frac{1}{4}$ " 2-in-1	—



# TECHNICAL DATA

## WELDING AND CUTTING TORCHES



### SLIP-IN CUTTING TIPS

Seat perfectly by hand; no wrench needed . . . change in only seconds. Saves operator time in changing tips. Always easy to use the right tip for the cleanest and fastest cut. No need to "starve" or "force" tips.

**TIP MIX:** Gases mix in tip—automatically.

**99.99% PURE ELECTROLYTIC BAR COPPER.** Used to absorb excessive amounts of reflected heat or molten metal blow-back without backfiring. Tips are swaged to produce mirror-finish gas passages that minimize turbulence.

**REPLACEABLE SEATS.** Seats are recessed—protected from external damage. If they become worn, seats can be replaced in seconds.

	"SC" Tips	"MC" Tips
High Pressure Seat	G931 <sup>1</sup>	G695 <sup>2</sup>
Low Pressure Seat	G932 <sup>1</sup>	G694 <sup>2</sup>

Sold in sets; <sup>1</sup>G930 for "SC" Tips, <sup>2</sup>G691 for "MC" Tips. G932A low pressure seat available for extreme high temperature uses.

### STAINLESS STEEL TUBES

In cutting assembly provide strength without unnecessary weight. Silver brazed to head and butt brass forgings. 3-tube design keeps gases separated until mixed in the cutting tips.

### FLO-TROL CHECK VALVE

Safety feature which stops the back-flow of oxygen-fuel gas mixtures from backing into the high-pressure seat area. Prevents: seat burnout, damage to the cutting assembly, and possible injury to the operator.

HERE'S how it works: High pressure oxygen entering the area of the Flo-Trol check valve exerts pressure on a relatively large surface of the diaphragm to overcome the force of the spring. Any reverse flow of gas into the FLO-TROL area, however, exerts pressure on a relatively small surface of the diaphragm . . . too little to overcome the spring tension. Thus the diaphragm remains seated and back pressures are stopped where they cannot cause damage.

### SLIP-IN CUTTING ASSEMBLIES AND WELDING TIPS

Slip quickly into the torch body — give tip or assembly a ¼ turn when inserting . . . hand-tighten nut — that's all! A perfect, gas-tight seal is provided by "O" rings. Cutting assembly or welding tip may be rotated 360° without extinguishing the flame. Also makes possible 6-second tip change and rapid change from welding to cutting. "O" rings are replaceable.

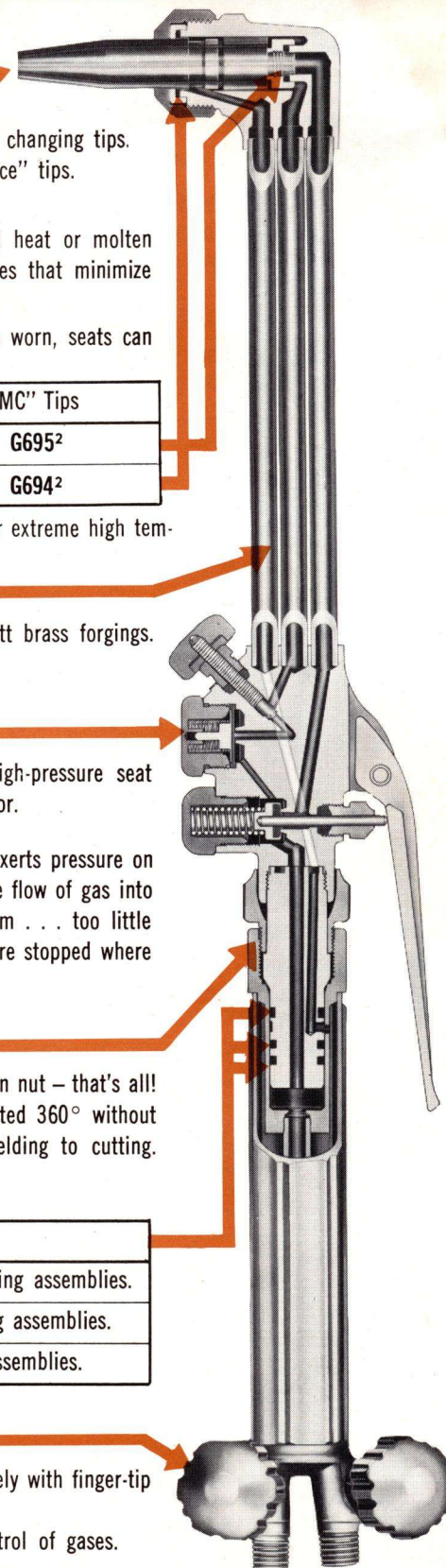
"O" Rings	Description
LW15 (package of 6)	For SILVER STAR welding tips and cutting assemblies.
MW15 (package of 6)	For PIPELINER welding tips and cutting assemblies.
AW15 (package of 6)	For AIRLINE welding tips and cutting assemblies.

### TORCH BODY CONTROL VALVES

"Ball" type used on SILVER STAR and PIPELINER Torch Bodies. Stainless steel ball seats positively with finger-tip pressure. Teflon packing provides right amount of "drag".

Needle valve control valve is used on AIRLINE torch bodies to provide quick, positive control of gases.

	SILVER STAR AND PIPELINER		AIRLINE
NEEDLE VALVES	LW14	SW14	AW11
TORCH BODY NO.	SW1, SW2 MW5, PW1	SW10	AW1







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# TECHNICAL DATA

## CUTTING TIP INFORMATION TABLES

This information is intended as a guide to best quality cutting. The information was obtained from cuts made under average shop conditions and 5 second start time on new, clean steel. Three-hose machine cutting torches were used in a portable cutting machine with gases fed to the torches through 25 foot lengths of 1/4" I.D. hose. Footnotes show when other sizes of hose were used.

Regulators used were the H517 Oxygen cutting line regulator (equal to H102E cylinder regulator) and the H541A Acetylene line regulator (equal to the H101J or H101PA cylinder regulators).

### MANIFOLDING CYLINDERS

Where the required cutting tip flows are greater than the recommended rate of withdrawal from one cylinder (300 cu. ft. acetylene or 100 lb. propane cylinder) we have recommended the number of cylinders to be manifolded. Manifold information is based on the following: PROPANE—cylinder 1/2 full, temperature 32°F.

### ACETYLENE AND OXYGEN MEDIUM PRESSURE CUTTING TIPS

SC12 Series: MEDIUM PREHEAT For General Hand and Machine Cutting (6 and 8 preheats)

SC10 Series: MEDIUM PREHEAT For General Hand Cutting.

Metal Thickness	Tip Number	Tip Number	OXYGEN PRESSURE P.S.I.			Fuel Gas Pressure	CONSUMPTION C.F.H.			Cutting Speed	Kerf Width	DRILL SIZES			Recomm. No. of Cylinders (Sgl. or Manif.)
			Cutting Pressure		Preheat Pressure At Reg. (1)		Cutting Oxygen	Preheat Oxygen	Fuel			Cutting Jet	Preheat SC10 Series	Preheat SC12 Series	
			At Regulator	At Torch											
1/8"	SC10-000	SC12-000	20	20	3	3	18	7	6.5	28	.035	72	71	75	1
3/16"	SC10-00	SC12-00	20	20	3	3	24	7	6.5	26	.050	68	71	75	1
1/4"	SC10-0	SC12-0	30	30	4	4	40	7.5	7	22	.055	62	70	74	1
5/8"	SC10-0	SC12-0	35	35	4	4	50	7.5	7	20	.055	62	70	74	1
1/2"	SC10-1	SC12-1	35	35	4	4	75	11	9.5	19	.080	56	68	71	1
5/8"	SC10-1	SC12-1	40	40	4	4	85	11	9.5	17	.080	56	68	71	1
3/4"	SC10-2	SC12-2	36	35	4	4	105	12	10.5	16	.095	54	65	70	1
1"	SC10-2	SC12-2	41	40	4	4	115	12	10.5	14	.095	54	65	70	1
1 1/4"	SC10-2	SC12-2	51	50	4	4	135	12	10.5	13	.095	54	65	70	1
1 1/2"	SC10-3	SC12-3	42	40	5	5	170	14	12	12	.100	51	65	68	1
2"	SC10-3	SC12-3	47	45	5	5	180	14	12	10	.100	51	65	68	1
2 1/2"	SC10-4	SC12-4	38	35	5	5	240	15	13	9	.125	45	60	62	1
3"	SC10-4	SC12-4	44	40	5	5	265	15	13	8	.125	45	60	62	1
4"	SC10-4	SC12-4	54	50	5	5	315	16	14	7	.125	45	60	62	1
5"	SC10-5	SC12-5	56	50	6	6	420	29	25	7	.150	41	60	60	1
6"	SC10-5	SC12-5	67	60	6	6	485	29	25	6	.150	41	60	60	1
8"	SC10-5	SC12-5	78	70	6	6	550	30	26	5.5	.150	41	60	60	1
10"		SC12-6	83	70	6	6	750	32	28	5	.203	32		60	1
12"		SC12-6	125	90	6	6	975	32	28	4.5	.230	32		60	1
14"		SC12-7	100	82	6	7	1250	34	30	4	.250	28		56	1

(1) For 3-hose machine cutting torches only.

The figures shown here were gathered under average machine cutting conditions, using clean steel. Pressures shown are for 25 feet (or less) of 1/4" I.D. hose. If longer hose is used, pressures should be increased.

SCH Series: HEAVY PREHEAT. For hand or machine cutting.

Metal Thickness	Tip Number	OXYGEN PRESSURE P.S.I.			Fuel Gas Pressure	CONSUMPTION C.F.H.			Cutting Speed	Kerf Width	DRILL SIZES		Recomm. No. of Cylinders (Sgl. or Manif.)
		CUTTING PRESSURE		Preheat Pressure At Regulator		Cutting Oxygen	Preheat Oxygen	Fuel			Cutting Jet	Preheat	
		At Regulator	At Torch										
½"	SCH-1	35	35	3	3	75	33	30	19	.080	56	59	1
⅝"	SCH-1	40	40	3	3	85	33	30	17	.080	56	59	1
¾"	SCH-2	36	35	3	3	105	33	30	16	.095	54	59	1
1"	SCH-2	41	40	3	3	115	33	30	14	.095	54	59	1
1¼"	SCH-2	51	50	3	3	135	33	30	13	.095	54	59	1
1½"	SCH-3	42	40	3	3	170	33	30	12	.100	51	59	1
2"	SCH-3	47	45	4	4	180	50	45	10	.100	51	56	1
2½"	SCH-4	38	35	4	4	240	50	45	9	.125	45	56	1
3"	SCH-4	44	40	4	4	265	50	45	8	.125	45	56	2
4"	SCH-4	54	50	5	5	315	57	52	7	.125	45	56	2
5"	SCH-5	56	50	5	5	420	57	52	7	.150	41	56	2
6"	SCH-5	67	60	5	5	485	66	60	6	.150	41	56	2
8"	SCH-5	78	70	6	6	550	72	65	5.5	.150	41	56	2
10"	SCH-6	83	70	8	8	750	83	75	5	.203	32	54	2
12"	SCH-6	125	90	9	9	975	94	85	4.5	.230	32	54	2
14"	SCH-7	100	85	10	8	1250	110	100	4	.250	28	54	3
16"	SCH-8	95	70	10	9	1500	120	110	3.5	.300	17	54	3
18"	SCH-8	115	85	12	11	1800	130	120	3.5	.340	17	54	4
20"	SCH-9	110	70	14	12	2150	145	130	3	.350	3	54	4
24"	SCH-9	130	85	15	13	2600	175	160	2.5	.360	3	54	4

(1) For 3-hose machine cutting torches only.

The figures shown here were gathered under ideal machine cutting conditions, using clean steel. Pressures shown are for 25 feet (or less) of 3/8" I.D. hose. If longer hose is used, pressure should be increased. Use 1/2" I.D. hose when hose length is over 100 feet.

(2) 300 cu. ft. Acetylene Cylinder



# TECHNICAL DATA

## LP-GAS AND OXYGEN - Medium Pressure Cutting Tips



NWSA 82

**SC50A SERIES:** For General Hand and Machine Cutting. Medium preheat on SC50A-00 and SC50A-0. Heavy preheat on SC50A-1 through SC50A-9.

Metal Thickness	Tip Number	CUTTING OXYGEN			WHEN USING PROPANE				WHEN USING NATURAL GAS				Kerf	Speed I.P.M.	DRILL SIZE° Cutting	Recomm. No. of Fuel Gas Cylinders (Sgl. or Manif.)
		P.S.I. At Reg.	P.S.I. At Torch	Flow CFH	Preheat PSI		Preheat CFH		Preheat PSI		Preheat CFH					
					Oxy.	Fuel	Oxy.	Fuel	Oxy.	Fuel	Oxy.	Fuel				
3/16"	SC50A-00	20	20	24	6	5	47	13	6	5	58	36	.050	26	68	1
1/4"	SC50A-0	30	30	40	6	5	47	13	6	5	62	38	.055	22	62	1
5/8"	SC50A-0	35	35	50	6	5	47	13	6	5	62	38	.055	20	62	1
1/2"	SC50A-1	35	35	75	8	6	70	15	8	6	70	40	.080	19	56	1
5/8"	SC50A-1	40	40	85	8	6	70	15	8	6	70	40	.080	17	56	1
3/4"	SC50A-2	36	35	105	8	6	70	15	8	6	70	40	.080	16	54	1
1"	SC50A-2	41	40	115	8	6	70	15	8	6	70	40	.095	14	54	1
1 1/4"	SC50A-2	51	50	135	8	6	75	16	8	6	70	40	.095	13	54	1
1 1/2"	SC50A-3	42	40	170	8	6	75	16	8	6	70	40	.095	12	51	1
2"	SC50A-3	47	45	180	8	6	75	16	8	6	70	40	.100	10	51	1
2 1/2"	SC50A-4	38	35	240	8	6	75	16	8	6	75	45	.125	9	45	1
3"	SC50A-4	44	40	265	8	6	75	16	8	6	75	45	.125	8	45	1
4"	SC50A-4	54	50	315	8	6	80	17	8	6	75	45	.125	7	45	1
5"	SC50A-5	56	50	420	8	6	80	17	8	6	82	50	.150	7	41	1
6"	SC50A-5	67	60	485	8	6	80	17	8	6	82	50	.150	6	41	1
8"	SC50A-5	78	70	550	10	7	90	20	8	6	82	50	.150	5	41	1
10"	SC50A-6	83	70	750	40	8	230	50	10	8	120	75	.203	5	32	2
12"	SC50A-6	125	90	975	40	12	280	60	15	12	165	100	.230	4.5	32	2
14"	SC50A-7	100	85	1250	60	20	330	62	20	16	200	120	.250	4.0	28	3
16"	SC50A-8	95	70	1500	60	18	375	80	20	18	220	135	.300	3.5	17	3
18"	SC50A-8	115	85	1800	60	20	400	85	25	23	250	150	.340	3.5	17	3
20"	SC50A-9	110	70	2150	60	23	420	90					.350	3.0	3	3

Preheat oxygen pressure settings apply only when a 3-hose torch is used.

Regulator pressures are for 50 feet of 3/8" I.D. hose. If longer hose or smaller I.D. hose is used, raise regulator pressures. If more than 100 feet of hose is required, use 1/2" I.D. hose for additional length.

**SC46 SERIES:** For Cutting Greasy or Painted Metal. One Piece LP-Gas Tip.

Metal Thickness	Tip Number	CUTTING OXYGEN			WHEN USING PROPANE				WHEN USING NATURAL GAS				Kerf	Speed I.P.M.	DRILL SIZE Cutting
		P.S.I. At Reg.	P.S.I. At Torch	Flow CFH	Preheat PSI		Preheat CFH		Preheat PSI		Preheat CFH				
					Oxy.	Fuel	Oxy.	Fuel	Oxy.	Fuel	Oxy.	Fuel			
½"	SC46-1	35	35	75	20	10	90	15	15	10	87	52	.080	19	56
⅝"	SC46-1	40	40	85	20	10	90	15	15	10	87	52	.080	17	56
¾"	SC46-2	36	35	105	20	10	90	15	15	10	87	52	.095	16	54
1"	SC46-2	41	40	115	20	10	90	15	15	10	87	52	.095	14	54
1¼"	SC46-2	51	50	135	20	10	90	15	15	10	87	52	.095	13	54
1½"	SC46-3	42	40	170	20	10	90	15	15	10	87	52	.100	12	51
2"	SC46-3	47	45	180	20	10	90	15	15	10	87	52	.125	10	51
2½"	SC46-4	38	35	240	20	10	90	15	15	10	87	52	.125	9	45
3"	SC46-4	44	40	265	20	10	90	15	15	10	87	52	.125	8	45
4"	SC46-4	54	50	315	20	10	90	15	15	10	87	52	.150	7	45

**SC21A SERIES:** For HIGH SPEED Machine Cutting.

Metal Thickness	Tip Number	Cutting Speed I.P.M.	OXYGEN PRESSURE		Propane P.S.I.	CONSUMPTION (CFH)			Kerf	Tip Cleaners Cutting Jet
			Cut. Oxy. At Reg.	Preheat P.S.I.		Cutting Oxygen	Preheat Oxygen	Propane		
1/4"	SC21A-1	26	85	10	8	76	47	13	.080	TC-1
3/8"	SC21A-1	24	85	10	8	76	47	13	.080	TC100
1/2"	SC21A-2	22	100	10	8	116	53	13	.085	TC-2
3/4"	SC21A-2	20	110	10	8	126	53	13	.090	TC100
1"	SC21A-2	18	115	10	8	132	53	13	.095	
1 1/4"	SC21A-3	17	95	10	8	169	53	13	.100	TC-3
1 1/2"	SC21A-3	15	115	10	8	202	53	13	.105	TC100
2"	SC21A-4	13	100	10	8	195	53	13	.095	TC-4
2 1/2"	SC21A-4	12	110	10	8	210	53	13	.110	TC100
3"	SC21A-5	10	110	10	8	247	53	13	.115	TC-5
4"	SC21A-5	9	115	10	8	257	60	16	.115	TC100
5"	SC21A-6	8	110	10	8	370	60	16	.136	TC-6
6"	SC21A-6	7	125	10	8	405	60	16	.136	TC100

These tips give about 20% more speed than comparable tips . . . with no increase in oxygen consumption. They are designed for use in machine cutting torches only. Tips have 12 pre-heat slots.





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**TECHNICAL DATA****LP-GAS AND OXYGEN — Medium Pressure Cutting Tips**

SC27A SERIES: For HIGH QUALITY Machine Cutting.

Metal Thickness	Tip Number	CUTTING OXYGEN			WHEN USING PROPANE				WHEN USING NATURAL GAS				Kerf	Speed I.P.M.	DRILL SIZE*
		P.S.I. At Reg.	P.S.I. At Torch	Flow C.F.H.	Preheat PSI		Preheat CFH		Preheat PSI		Preheat CFH				
					Oxy.	Fuel	Oxy.	Fuel	Oxy.	Fuel	Oxy.	Fuel			
1/8"	SC27A-000	20	20	18	6	5	47	13	6	5	58	36	.025	28	72
3/16"	SC27A-00	20	20	24	6	5	47	13	6	5	58	36	.050	26	68
1/4"	SC27A-0	30	30	40	6	5	47	13	6	5	62	38	.055	22	62
3/8"	SC27A-0	35	35	50	6	5	47	13	6	5	62	38	.055	20	62
1/2"	SC27A-1	35	35	75	6	5	53	14	6	5	63	39	.080	19	56
5/8"	SC27A-1	40	40	85	6	5	53	14	6	5	63	39	.080	17	56
3/4"	SC27A-2	36	35	105	6	5	53	14	6	5	63	39	.095	16	54
1"	SC27A-2	41	40	115	6	5	53	14	6	5	63	39	.095	14	54
1 1/4"	SC27A-2	51	50	135	6	5	53	14	6	5	63	39	.095	13	54
1 1/2"	SC27A-3	42	40	170	6	5	55	15	6	5	64	39	.095	12	51
2"	SC27A-3	47	45	180	6	5	55	15	6	5	64	39	.100	10	51
2 1/2"	SC27A-4	38	35	280	6	5	55	15	6	5	66	39	.100	9	45
3"	SC27A-4	44	40	465	6	5	55	15	6	5	66	39	.100	8	45
4"	SC27A-4	54	50	315	6	5	60	16	6	5	68	43	.125	7	45
5"	SC27A-5	56	50	420	6	5	60	16	6	5	70	44	.125	7	41
6"	SC27A-5	67	60	485	6	5	60	16	6	5	70	44	.125	6	41

These tips are intended primarily for machine cutting where precision, high quality cuts with minimum top burn-over are required. They may, however, be used in hand torches if desired. The 12 large preheat flutes give excellent control of the edge burn-over, particularly on thicker materials. Preheat flames cover a larger area and are less concentrated than in the SC50 Series.

\*Sizes 000, 00, 0 have 10 pre-heat slots. All other sizes have 12 slots.

**LOW PRESSURE CUTTING TIPS - INJECTOR STYLE**

SC28 Series: HEAVY PREHEAT TIPS For Fast Starts

SC31 Series: For General Hand and Machine Cutting

For use with: LOW PRESSURE NATURAL GAS, MANUFACTURED GAS and LP-GASES with Oxygen

Steel Thickness	SC28 Series Tip Number	SC31 Series Tip Number	OXY. CUTTING PRESSURE			Fuel Gas Pressure	CONSUMPTION		Kerf	Speed I.P.M.	Drill Cleaner
			(A) PSI At Torch	Opr. PSI At Reg.	(B) Preheat Oxygen PSI		Oxygen C.F.H.	C.F.H. Fuel			
1/8"		SC31-00	20	20	30	3.5 oz. per sq. in. or 6" water press. pressure for each Tip	84	40	.050	28	68
3/16"		SC31-00	20	20	30		84	40	.050	26	68
1/4"		SC31-0	30	30	30		98	40	.055	22	62
3/8"		SC31-0	35	35	30		102	40	.055	20	62
1/2"	SC28-1	SC31-1	35	35	30		136	40	.080	19	56
5/8"	SC28-1	SC31-1	40	40	30		143	40	.080	17	56
3/4"	SC28-2	SC31-2	34	35	30		160	40	.095	16	54
1"	SC28-2	SC31-2	39	40	30		189	40	.095	14	54
1 1/4"	SC28-2	SC31-2	49	50	30		203	40	.095	13	54
1 1/2"	SC28-3	SC31-3	43	45	30		224	40	.100	12	51
2"	SC28-3	SC31-3	48	50	30		272	40	.100	10	51
2 1/2"	SC28-3	SC31-3	53	55	30		300	40	.100	9	51
3"	SC28-4	SC31-4	41	45	30		340	40	.125	8	45
4"	SC28-4	SC31-4	46	50	30		370	40	.125	7	45
5"	SC28-5	SC31-5	44	50	40		480	50	.150	7	41
6"	SC28-5	SC31-5	53	60	40		563	50	.150	6	41
8"	SC28-5	SC31-5	62	70	40		616	50	.150	4.5	41
10"	SC28-6	SC31-6	57	70	40		800	50	.185	3.5	32
12"	SC28-6	SC31-6	85	120	40		1030	50	.185	3	32

DATA BASED ON: Machine Cutting of Clean Steel with Low Pressure Natural Gas at 6" Water Pressure (3.5 oz. PSI). 25 feet of 1/4" I.D. oxygen and fuel gas hoses. Use of hydraulic back pressure seal (valve) on the fuel gas supply source.

PREHEAT OXYGEN C.F.H. is 60 C.F.H. for all thicknesses. The Preheat Oxygen C.F.H. is contained in the figures in Column 8.

(A) Can be used only when the Torch cutting oxygen inlet is equipped with a gauge for separate readings.

(B) Only for 3-Hose Machine Cutting Torch.



SC56 SERIES CUTTING TIPS. For use with \*Mapp® gas or acetylene.

Metal Thickness	Tip No.	Oxygen Pressure P.S.I.			Preheat Openings	Mapp® Gas Pressure	Consumption CFH			Cutting Speed	Kerf Width	Drill Size	
		Cutting Pressure		Preheat Pressure Regulator			Cutting Oxygen	Preheat Oxygen	Mapp®			Cutting Jet	Preheat
		Regulator	Torch										
3/16"	SC56-00	20	20	3	8	3	24	22.5	6.5	26	.050	68	68
1/4"	SC56-0	30	30	4	8	4	40	24.5	7.0	22	.055	62	68
3/8"	SC56-0	35	35	4	8	4	50	24.5	7.0	20	.055	62	68
1/2"	SC56-1	35	35	4	8	4	75	31.5	9.0	19	.080	56	65
5/8"	SC56-1	40	40	4	8	4	85	31.5	9.0	17	.080	56	65
3/4"	SC56-2	36	35	4	8	4	105	35.0	10.0	16	.095	54	60
1"	SC56-2	41	40	4	8	4	115	38.5	11.0	14	.095	54	60
1 1/4"	SC56-2	51	50	4	8	4	135	38.5	11.0	13	.095	54	60
1 1/2"	SC56-3	42	40	5	8	5	170	42.0	12.0	12	.100	51	58
2"	SC56-3	47	45	5	8	5	180	45.5	13.0	10	.100	51	58
2 1/2"	SC56-4	38	35	5	8	5	240	45.5	13.0	9	.125	45	56
3"	SC56-4	44	40	5	8	5	265	52.5	15.0	8	.125	45	56
4"	SC56-4	54	50	5	8	5	315	56.0	16.0	7	.125	45	56
5"	SC56-5	56	50	6	8	6	420	56.0	16.0	7	.150	41	54
6"	SC56-5	67	60	6	8	6	485	48.0	16.0	6	.150	41	54
8"	SC56-5	78	70	6	8	6	550	57.0	19.0	5.5	.150	41	54
10"	SC56-6	83	70	6	8	6	750	66.0	21.0	5.0	.203	32	54
12"	SC56-6	125	90	6	8	6	975	66.0	21.0	4.5	.230	32	54

The figures shown here are for average shop cutting conditions.

Pressures shown are for 3-hose machine cutting torch only using 25 feet or less of 1/4 inch I.D. hose.

Preheat flows shown are based on 5 second edge starts.

**Note:** SC56 Series cutting tip can also be used with Acetylene Gas (as a Heavy Preheat) with acetylene pressure equal to Mapp pressure (or slightly less) and at oxygen pressures as shown above. Flow figures above do not apply when using acetylene.

\*MAPP is a registered trademark of Dow Chemical Co.

## MEDIUM PRESSURE ACETYLENE CUTTING TIPS

MC10/12 Series: Use in Pipeliner or Airline Cutting Assemblies. For Medium Pressure Oxygen and Acetylene.

Metal Thickness	TIP SIZE		Oxygen P.S.I.	Acetylene P.S.I.	APPROX. CONSUMPTION (CFH)		DRILL SIZES		
	6 Preheat	4 Preheat			Oxygen	Acetylene	Cutting Jet	PREHEATS	
								MC10	MC12
1/8"	MC12-000		20	3	25	6.5	72		75
1/8"-3/16"	MC12-00	MC10-00	20	3	30	6.5	68	71	75
1/4"	MC12-0	MC10-0	30	4	50	7	62	70	74
3/8"	MC12-0	MC10-0	35	4	60	7	62	70	74
1/2"	MC12-1	MC10-1	35	4	85	9.5	56	68	71
5/8"	MC12-1	MC10-1	40	4	95	9.5	56	68	71
3/4"	MC12-2		35 (1)	4	120	10.5	54		70
1"	MC12-2		40 (2)	4	130	10.5	54		70
1 1/2"	MC12-3		45 (3)	5	185	12	51		68
2"	MC12-3		50	5	195	12	51		68
2 1/2"	MC12-4		45	5	255	13	45		62
3"	MC12-4		55	5	280	13	45		62

(1) For Airline Cutting Assembly use 40 P.S.I. Oxygen pressure.

(2) For Airline Cutting Assembly use 50 P.S.I. Oxygen pressure.

(3) For Airline Cutting Assembly use 60 P.S.I. Oxygen pressure.

NOTE: Oxygen Consumption (CFH) for the MC12-2 and MC12-3 tips will be lower than chart lists where these tips are used in the Airline Cutting Assembly.

All other data applies to these tips when used in either the Airline or Pipeliner Cutting Assemblies.

Pressures shown are for 25 feet (or less) of 3/16" I.D. hose. If longer hose is used, pressures should be increased.



### HEATING TIPS—Medium and Low Pressure with Oxygen

Tip Number	Uses Oxygen and —	No. of Flames	Drill Size Flame Ports	FUEL GAS PRESSURES AT REG. OUTLET P.S.I.		Fuel Flow C.F.H.	OXYGEN PRESSURES AT REG. OUTLET		Oxygen Flow C.F.H.	Net BTU Output	*Recomm. No. of Fuel Gas Cylinders—Single or Manifold
				Valves Closed	Valves Open		Valves Closed	Valves Open			
AT605	Acetylene	7	64	11	10	29	12	10	32	41,557	1
MT603	Acetylene	7	64	6	5	28	8	6	31	40,124	1
MT605	Acetylene	7	56	10	9	51	10	8	57	73,083	2
MT610	Acetylene	12	57	12	9	90	30	28	100	128,970	2
ST603	Acetylene	7	56	6	4	50	6	4	55	71,650	2
ST605	Acetylene	12	57	10	6	87	11	7	96	124,671	2
ST610	Acetylene	12	54	12	10	136	15	10	150	194,888	3
ST615	Propane	42	56	15	13	105	50	40	387	281,000	3
ST615	Nat'l Gas	42	56	12	9	121	25	20	216	89,376	
ST625	Propane	72	58	30	25	178	70	60	611	411,002	6
ST625	Nat'l Gas	72	58	30	25	334	60	50	540	304,608	
ST630	Nat'l Gas	42	56	3.5 oz., or 6 inches water pressure		107	35	30	190	98,000	
ST635	Propane	81	Slots and Ports		20	290		56	1020	776,000	9
ST635	Nat'l Gas	81	Slots and Ports		23	520		45	860	384,280	
ST640	Nat'l Gas	72	Slots and Ports	3.5 oz. (5" water press.) up to 10 P.S.I.		195		60	335	179,000	
ST716	Propane	1	13			90	50	40	360	207,810	3
ST716	Nat'l Gas	1	13	12	10	170	60	50	270	156,060	
ST717	Propane	1	7/32"	12	10	130	70	60	515	300,170	4
ST717	Nat'l Gas	1	7/32"	16	14	245	70	60	390	224,910	
Tips below are used in Cutting Torches				21	18						
SC110	Acetylene	12	60	10	8	86	10	10	98	123,238	2
SC111	Propane	16	.025" x	3.5 oz., or 6 inches water pressure		32	65	60	125	73,888	1
SC111	Nat'l Gas	Slots	.040"			52	55	50	95	47,736	
SC112	Propane	12	Slots .036"	25	22	125	60	52	495	289,000	4
SC112	Nat'l Gas	12	x .065"	18	15	156	31	25	284	143,000	

AT605 data based on 25 feet of 3/16" I.D. hose. ST630, ST635, ST640, 25' of 3/8" hose. All other tip data based on 25 feet of 1/4" I.D. hose.

\*300 cubic ft. acetylene cylinder — 100 lb. propane cylinder. (1/3 full at 32° F.)

### WELDING TIPS—Medium Pressure Acetylene and Oxygen

#### ACETYLENE WELDING TIPS

Metal Thickness	Screw-In Tip Ends	WELDING TIP SERIES						Drill Cleaner Size	ACETYLENE & OXYGEN	
		AW200	MW200	PW300	SW200	SW300	SW600		Pressure Each Gas (P.S.I.)	Consumption Each Gas (C.F.H.)
Very		AW2000						78	3	.65
Light Metal		AW200						76	3	1.3
up to		AW20						74	3	1.7
1/32"		AW201	MW201		SW201			71	3	2.3
1/16"	#2	AW202	MW202		SW202			69	3	3.0
to		AW203	MW203		SW203			67	5	3.2
3/32"	#4	AW204	MW204		SW204			63	5	4.3
1/8"		AW205	MW205		SW205			57	5	6.0
5/32"	#6	AW206	MW206	PW306	SW206			56	5	9.0
3/16"		AW207	MW207	PW307	SW207			54	8	12.0
1/4"	#8	AW208	MW208	PW308	SW208			52	8	17.0
3/8"		AW209	MW209	PW309	SW209		SW609	49	8	23.0
1/2"	#10	AW210	MW210	PW310	SW210	SW310	SW610	44	11	36.0
5/8"			MW211		SW211	SW311	SW611	40	11	49.0
7/8"	#12		MW212		SW212	SW312	SW612	34	11	66.0
1" and over					SW213	SW313	SW613	30	11	90.0
					SW214	SW314	SW614	26	11	121.0

Consumption (C.F.H.—cubic feet per hour) figures shown, represent the average volumes of gases consumed when flames are set so that sooty smoke just disappears from the acetylene flame prior to opening oxygen valve and adjusting to neutral flame.

### WELDING TIP ENDS—Medium Pressure LP-Gases and Oxygen

#### LP-GAS BRAZING TIPS (Screw-In Tip Ends #4LP-#12LP)

Metal Thickness	Screw-in Tip No.	DRILL CLEANER SIZE		Pressure Each Gas (P.S.I.)	PROPANE and OXYGEN Consumption (C.F.H.)	
		Major Orifice	Minor Orifice		Propane	Oxygen
1/32" to 3/32"	#4LP	44	63	4 PSI	1.7	5.0
1/16" to 1/8"	#6LP	44	56	6 PSI	2.3	7.7
1/8" to 1/4"	#8LP	33	52	8 PSI	3.6	13.9
1/4" to 1/2"	#10LP	29	44	10 PSI	6.5	25.0
1/2" to 3/4"	#12LP	19	34	12 PSI	13.0	52.0



# TECHNICAL DATA

## SPECIAL PURPOSE CUTTING TIPS



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### CUTTING TIPS—Medium Pressure Acetylene and Oxygen

TIP NUMBER	MC13-3	MC15-3	MC17-000	MC17-00	MC17-0	MC17-2	SC13-1	SC13-3	SC13-5
Preheat Drill Size	60	60	66	65	59	57	69	59	55
Cutt. Jet Drill Size	50 29	50 29	72	68	62	54	57 49	50 29	39 10
Number of Preheat	6	6	1	1	1	1	6	6	6
Use	Gouging	Metal Washing	Plate Cutting	Plate Cutting	Plate Cutting	Plate Cutting	Gouging	Gouging	Gouging
Metal Thickness			1/8"	3/16" to 1/4"	3/8"	3/4" to 1 1/4"			

TIP NUMBER	SC14-1	SC14-3	SC15-1	SC15-2	SC16-4	SC17-000	SC17-00	SC17-0	SC17-2
Preheat Drill Size	59	56	57	57	57	66	65	59	57
Cutt. Jet Drill Size	56	51	3/16"	3	45	72	68	62	54
Number of Preheats	3	3	6	8	6	1	1	1	1
Use	Rivet Cutting	Rivet Cutting	Metal Washing	Metal Washing	Riser Cutting	Plate Cutting	Plate Cutting	Plate Cutting	Plate Cutting
Metal Thickness						1/8"	3/16" to 1/4"	3/8"	3/4" to 1 1/4"

TIP NUMBER	SC80-1	SC80-3	SC81-1	SC81-3
Preheat Drill Size	68	68	71	68
Cutting Jet Drill Size	56	51	56	51
Number of Preheats	6	6	6	6
Use	Flue Cutting	Flue Cutting	Flue Cutting	Flue Cutting
Metal Thickness	1/2" to 5/8"	1 1/2" to 2"	1/2" to 5/8"	1 1/2" to 2"

### CUTTING TIPS—Medium Pressure LP-Gases and Oxygen

#### SC23 Series: Gouging Tips

Tip Number	Cutting Jet	Preheat Slots	Fuel Gas Pressure	Oxygen Pressure
SC23-1	Throat #57 (.043) Exit #48 (.076)	8-(.025"x.040")	6-10 P.S.I.	20-30 P.S.I.
SC23-3	Throat #50 (.070) Exit #29 (.136)	10-(.025"x.050")	6-10 P.S.I.	20-30 P.S.I.
SC23-5	Throat #39 (.0995) Exit #10 (.1935)	10-(.025"x.050")	6-10 P.S.I.	20-30 P.S.I.

#### SC24 Series: Rivet and Bulkhead Cutting Tips

Tip No.	Cutting Jet	Preheat Slots	Fuel Gas Pressure	Oxygen Pressure
SC24-1	#57 (.043")	7-(.025"x.050")	6-10 P.S.I.	35-50 P.S.I.
SC24-3	#51 (.067)	7-(.025"x.050")	6-10 P.S.I.	35-50 P.S.I.

### CUTTING TIPS—Low Pressure Natural Gas and Oxygen

TIP NUMBER	SC33-3	SC33-5	SC34-1	SC34-3	SC35-1	SC35-2
Preheat Slots	.025" x .040"	.025" x .040"	.012" x .055"	.012" x .055"	.025" x .040"	.025" x .040"
Cutting Jet Drill Size	Throat 29 Exit 50	Throat 10 Exit 39	56	51	34	21
Number of Preheats	16 Slots	16 Slots	12 Slots	12 Slots	16 Slots	16 Slots
Use	Gouging	Gouging	Rivet Cutting	Rivet Cutting	Metal Washing	Metal Washing



The logo consists of the word "SMITH'S" in a bold, sans-serif font, enclosed within a black oval border.

## SMITH'S WARRANTY POLICY

Each item of welding, heating or cutting equipment manufactured and sold by Smith's is warranted to be free from defects in material and workmanship under normal use and service for a period of one year from date of purchase.

The Underwriters' Laboratories, Inc. label (attached to Smith's cutting and welding torches) covers the complete torch and tips ONLY when tips and parts, manufactured by Smith Welding Equipment, to exact specifications on file with Underwriters' Laboratories, Inc. are used, and when the torches, tips, and parts are used only in the gas service (acetylene, LP-Gases or natural gas with oxygen) for which they are designed and listed.

Gas regulation equipment (regulators, flowmeter regulators, etc.) manufactured by Smith Welding Equipment is listed under the Re-examination Service of Underwriters' Laboratories, Inc. The listing covers the complete equipment only when parts, manufactured by Smith Welding Equipment and made to exact specifications on file with Underwriters' Laboratories, Inc., are used and when the individual regulators are used only in the gas service for which they are designed and listed.



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**BIG 98**

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**BIG 98A**

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**HANDI-HEET**

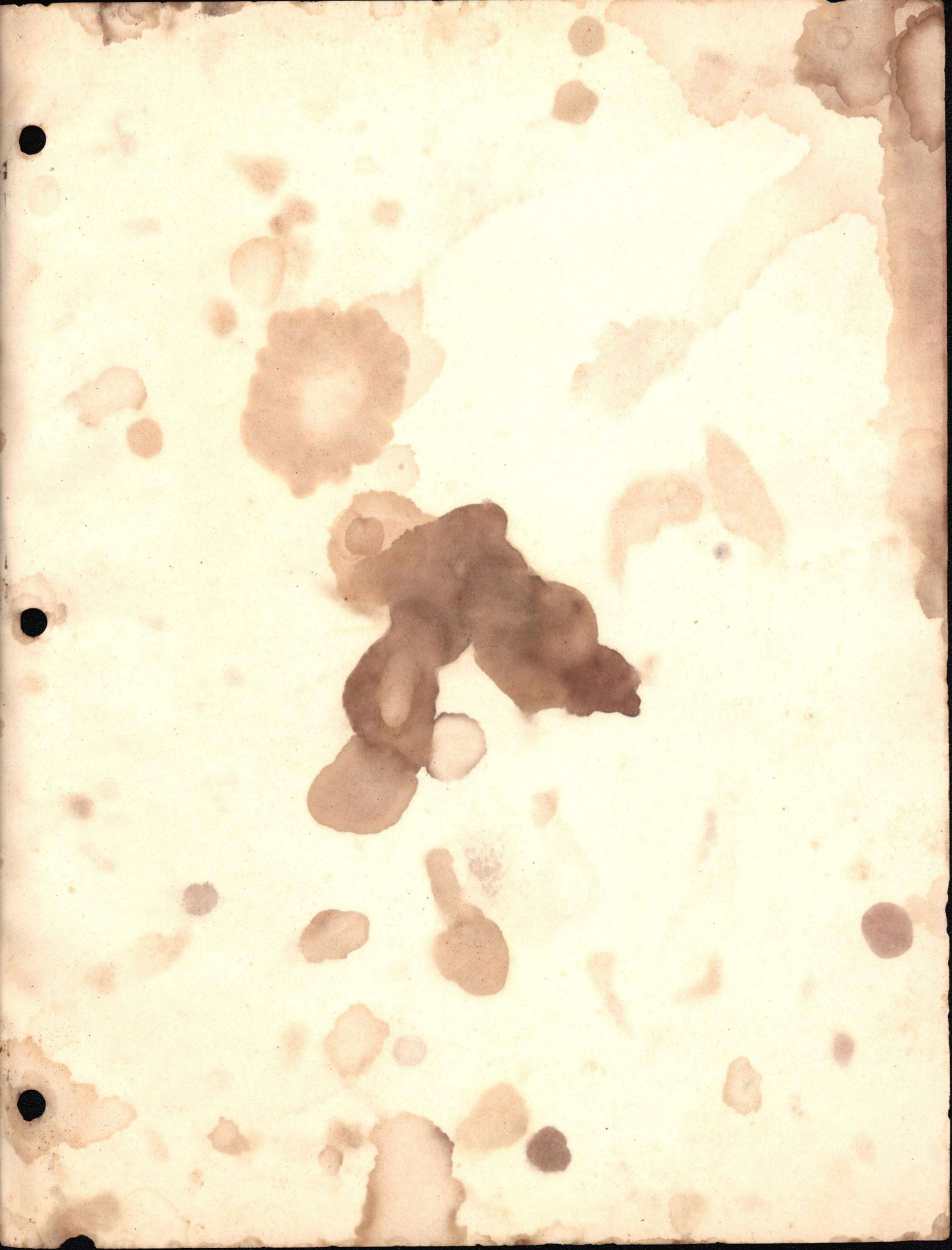
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